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ABSTRACT

The purpose of this document is to analyze some of the major developments and research findings of the European Observatory of Innovations in Education and Training (1994-1998). The Observatory was a consortium of 13 member countries of the European Union serving as a European network of researchers and educators in the field of comparative education. The Observatory formulated several major tasks that guided its work from 1994 to 1998: (1) gathering and analyzing information about innovation and the conditions of change; (2) identifying key ways of innovation dissemination; (3) networking innovators and facilitating innovations at the European level; (4) clarifying national innovation policies; and (5) sharing and distributing conceptual information and knowledge about educational innovations. Within the Observatory, an educational innovation was analyzed as a novelty, a product, a change, an action, a process, and an intention. Innovation was defined as a collective creation of original solutions, responding to needs. The research done in the Observatory revealed profound differences in the use and understanding of the notion of innovation in different countries. Innovation was often replaced by a close synonym, such as "change," "development," or "reform," to reflect different historical, sociological, or political patterns of thought implemented in different European countries. (Contains 4 tables, 86 references, and 200 endnotes.) (Author/SLD)

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Research Report

200

Seppo Tella & Kirsi Tirri

Educational Innovations in Finnish and European Contexts

An Analysis of the Aims and Outcomes of "The European Observatory" of the European Commission (1994-1998)

ED 453 278

Department of Teacher Education
University of Helsinki

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Preface

The present publication is an analysis of the activities of **the European Observatory Project (1994–1998)**. It is mainly concerned with the Observatory's theoretical concept of an educational innovation but it also aims to highlight some of its major outcomes. An important aim is to present the Finnish contributions to the Observatory. Two Finnish educational experts participated in the Observatory: Professor **Seppo Tella**, first as a National Correspondent (1995) and then as a Member of the Scientific Committee of the Observatory (1995–1998), and Docent **Kirsi Tirri**, as a National Correspondent (1995–1998).

• •

The division of labour between the two authors of this publication took place as follows:

The initial need for writing about the Observatory was shared by the two authors. The original Table of Contents was also designed together. Chapters 1, 2 and 3 were first written by Seppo Tella, and then commented on by Kirsi Tirri. Chapter 4 was based on Kirsi Tirri's earlier contributions to the Observatory in 1995–1997. These Finnish contributions were grounded on the research done by Docent Tirri for the Observatory, though the national report (Tirri 1996) and the article based on it (Tirri & Tella 1997) had also been commented on by Professor Tella. These studies have been rewritten and elaborated by Docent Tirri for this publication. The first part of Chapter 5 was first written by Seppo Tella and commented on by Kirsi Tirri; the latter part was written by Kirsi Tirri and commented on by Seppo Tella. All in all, both authors have read and commented on all parts of the manuscript.

• •

We are most grateful to Professor **Juhani Hytönen**, Head of the Department of Teacher Education, for giving us the chance to add this publication to the **Research Report** series of the Department of Teacher Education. We hope that our study will contribute to the development of comparative education in our institution.

We are particularly honoured to have Number 200 of the series of the Research Reports of the Department of Teacher Education at our disposal. We sincerely hope that the theme of educational innovations in European Union member countries is a good choice for this special number to be celebrated at the Department. Professor Tella was the one to edit Number 100 seven years ago (Tella 1992a). To him, it was a special pleasure to contribute to Number 200 as well. It is interesting to note that it was in Number 100 in 1992 that the Virtual School concept was first introduced into Finnish educational parlance by Professor Tella (Tella 1992b). In this publication, the Virtual School concept is the core of the second Finnish case study, so the idea has been alive and researched over the years.

Our special thanks to Mr **Kari Perenius** for the unfailing humour and generosity with which he has solved a legion of technical problem, including all the technical aspects as well as the finishing touches related to this particular publication.

Helsinki, March 5, 1999

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Educational Innovations in Finnish and European Contexts

An Analysis of the Aims and Outcomes of "The European Observatory" of the European Commission (1994–1998)

by

Seppo Tella & Kirsi Tirri
University of Helsinki

Abstract

The purpose of this publication is to analyse some of the major developments and research findings of "The European Observatory of Innovations in Education and Training" (1994–1998). The Observatory was a European consortium of 13 EU member countries whose aim was to constitute a European network of researchers and educationalists in the field of comparative education. The Observatory formulated several major tasks that guided its action from 1994 to 1998: gathering and analysing information about innovation and conditions of change, identifying key ways of innovation dissemination, networking innovators and facilitating innovations at the European level, clarifying national innovation policies, and sharing and distributing conceptual information and knowledge about educational innovations.

Within the Observatory, an educational innovation was analysed as a novelty, a product, a change, an action, a process and an intention. Innovation was defined as a collective creation of original solutions, responding to (new) needs. The research done in the Observatory revealed profound differences in the use and understanding of the notion of innovation in different countries. It was also often replaced by a near synonym, such as change, development or reform, that reflected different historical, sociological or political patterns of thought implemented in different EU countries.

Finland was represented on the Observatory's scientific committee by Professor Seppo Tella and on the management committee by Dr. Kirsi Tirri. The Finnish contributions to the Observatory included, among other things, a national report, interviews of Finnish decision-makers and two case studies. One of the emphases underlined by the Finnish representatives was modern information and communication technologies (MICT) in the emerging information and communication society.

Keywords: innovation; change; development; education; equality; equity; information and communication technologies; information and communication society; European Union; comparative education; cross-cultural communication.

Abstrakti

Tämän julkaisun tarkoituksena on analysoida "Eurooppalaisen kasvatus- ja koulutusinnovaatio-observatorion" pääkehityslinjoja ja tutkimustuloksia. Observatorio oli Euroopan unionin 13 jäsenvaltion konsortiumi, jonka tavoitteena oli perustaa vertailevan kasvatustieteen alueella toimivien tutkijoiden ja kasvatustieteilijöiden eurooppalainen verkosto. Observatorion vuosiksi 1994–1998 asettamat tavoitteet sisälsivät mm. tiedon keräämisen innovaation ja muutoksen ehdoista, innovaation keskeisten levitystapojen tunnistamisen, eurooppalaisella tasolla toteutuvan innovaattorien verkottamisen ja innovaation levittämisen helpottamisen, kansallisten innovaatiopolitiikkojen selventämisen ja kasvatusinnovaatioita koskevan käsitteellisen informaation ja tiedon jakamisen ja välittämisen.

Observatorio analysoi kasvatusinnovaatiota uutuutena, tuotteena, muutoksena, toimintana, prosessina ja intentionaalisuutena. Innovaatio määriteltiin sellaisten uutuusvoimaisten ratkaisujen kollektiiviseksi luomiseksi, jotka vastaavat (uusiin) tarpeisiin. Observatoriossa tehty tutkimus paljasti syvällisiä eroja innovaatio-käsitteen käytössä ja ymmärtämisessä eri maissa. Sen korvasi usein lähisynonyymi, kuten muutos, kehitys tai reformi, jotka ilmensivät eri EU-maissa vallalla ollutta historiallista, sosiologista tai poliittista katsantoa.

Suomea edustivat Observatorion tieteellisessä komiteassa professori Seppo Tella ja toimeenpanevassa komiteassa dosentti Kirsi Tirri. Suomi toimitti Observatoriolle mm. kansallisen raportin, suomalaisten päättäjien haastatteluja ja kaksi tapaustutkimusta. Yksi suomalaisten painopistealue oli kehittyvän tieto- ja viestintäyhteiskunnan moderni tieto- ja viestintätekniikka.

Avainsanat: innovaatio, muutos, kehitys, kasvatus, tasa-arvo, tieto- ja viestintätekniikka, tieto- ja viestintäyhteiskunta, Euroopan unioni, vertaileva kasvatustiede, kulttuurienvälinen viestintä.

1. INTRODUCTION

1.1 Background to the European Observatory

The present publication is concerned with a project called "**The European Observatory of Innovations in Education and Training**" (« **L'observatoire européen des innovations en éducation et en formation** ») and especially with the Finnish point of view represented in the project by two Finnish participants, Professor **Seppo Tella** and Docent **Kirsi Tirri**. This publication will cover some of the major developments of the Observatory by highlighting a number of central issues discussed during the life-span of the project (1994–1998).

According to the Activity Report of the Observatory (Activity Report 1995), the reasons for establishing the Observatory arose from the Treaty of the European Union (The Treaty of Maastricht, November 1st, 1993, Articles 126–127[1]), which has given a new capacity for proposing co-operative actions to encourage the mobility of people and ideas in an open European space:

> "The success of the European construction requires particular attention to the quality of teaching and the equality of opportunities in a Europe, where multiculturalism, multi-lingualism and multi-ethnism accentuate the diversity and the heterogeneity of school publics. In addition, it requires increased attention to the training of supervisors, teachers, in particular language teachers as well as the staff in charge of promoting the European dimension in school establishments by developing European educational projects." (Activity Report 1995, 3)

In line with the above developments, l'Institut National de la Recherche Pédagogique (INRP; National Institute for Pedagogical Research; Ministry of Education, Paris, France) wished to give a more European dimension to all of its activities by increasing its international and European scope and providing, with researchers, a support structure, enabling them to broaden the scope of the fields and the research issues. (Activity Report 1995, 3)

The European Observatory of Innovations in Education and Training was a European consortium that combined the efforts of representatives coming from 13 member states (14 when at its largest) of the European Union. The consortium was initiated in late

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[1] Article 126 of the Treaty of the European Union states that "The Community contributes to the development of high quality education by encouraging co-operation between member states".

1994 by Madame **Francine Vaniscotte** (chargée de mission-Europe, INRP) and expanded into a European framework in early 1995. The first meeting of the Pilot Group (cf. p. 7) took place on November 16th, 1994. The Scientific Committee (cf. p. 7) of the Observatory met on January 27th, 1995, for the first time. By its first general meeting in Paris in June 1995, the Observatory had extended its network of researchers and participants into 13 of the 15 member states of the European Union. The Observatory continued to work until the end of 1998 when the project's final report, co-ordinated by the Project Co-ordinator **Françoise Cros** from the INRP (Cros 1998c), was submitted to the European Commission.

The Observatory was an educational consortium, aiming at conducting research on educational innovations in all member states of the European Union. It was run by the INRP, with the help of researchers from the participating countries.

The Observatory was financed by the European Commission (DGXII) and the French INRP. Part of the funding came from the institutions that participated in the Observatory. In Finland, the institutional funding was first taken care of by the Helsinki University Department of Teacher Education and later by the Media Education Centre of the Helsinki University Department of Teacher Education.

1.2 Aims and Methodology of the Present Publication

1.2.1 Aims of the Present Publication

The present publication has several aims. First, from a European point of view, it will serve as a feedback report to the Observatory itself, while underscoring the Finnish (or even Nordic) interpretations of some of the key issues of the Observatory. Second, it is aimed at Finnish education authorities, decision-makers, teacher educators and teachers, by providing them with an analysis of some of the activities of this European Union-based project. One part of the Observatory's activities consisted of national case studies, which covered a number of ideas presented by school authorities and civil. This publication will also report on the Finnish interviewees' ideas about educational innovations (Chapter 4.2, p. 31). A third aim is to contribute to the growing research literature in the field of comparative education, which so far has not received enough attention at the Helsinki Department of Teacher Education.

Our analysis is based on various sources. First, we will consult some of the documents and reports written and compiled during the Observatory. The most important of these documents is the French-language Final Report, published in December 1998 (Cros 1998c). The English-language Final Report was not available while we were working on this publication. Second, we had recourse to all the documents, reports and notes written by the Finnish representatives for the Observatory or for different members of the Observatory. Three major contributions in this respect include the Finnish National Report (Tirri 1996; also Tirri 1998), an article based on our analysis of the Finnish interviews (Tirri & Tella 1997), and an article elaborating on a virtual school experiment and the Finnish educational system (Tirri & Tella; submitted for publication). Third, we have browsed through the correspondence of 1995–1998 in order to find some important issues discussed in the Observatory.

1.2.2 Methodology of the Present Publication

The methodological approach adopted for this publication could be called a pragmatically and theoretically informed comparative inter-subjectivity, in which our own interpretations are utilised as part of the analytical instrument. This kind of approach implies an effort to balance pragmatism and theory in a comparative study, in which inter-subjectivity is derived from the two authors' deliberate and metacognitive choice of focusing exclusively on a few scientifically relevant issues and putting these choices through a bilateral evaluation. In this sense, this study belongs to comparative education. When the data gathering mechanisms of the European Observatory are taken into account, it becomes evident that the subjective element cannot be eliminated as will be explained later in this publication. Since this study also belongs to those concerned with educational policies, it is understandable that the authors' inter-subjectivity is derived from a Finnish educational infrastructure.

To some extent, the methodological approach makes use of a thematically focused discourse analysis, in which the written data consist of the printed (or electronic) documents. This is very much in line with what António Nóvoa eloquently describes when defining comparative education:

> « Je n'ai pas l'intention de reconstruire *la logique* de l'Éducation Comparée, dont la cohérence est toujours à trouver dans une idéologie de progrès; bien au contraire, j'essayerai de déconstruire les *textes* (les idées, les intentions, les actions) produits par différents … » (Nóvoa 1995)

Indeed, this is very much our approach as well: first to deconstruct (déconstruire) the ideas, intentions and actions produced by the Observatory into semantically meaningful units of explanation; and then, what Nóvoa does not say but which in our understanding is the next important step to take, to *re*construct these explanatory units into conceptually relevant entities. The whole process is an interaction between two factors, deconstruction and reconstruction. In this way, we argue to get a deeper understanding of the comparative aspects of the long experience of the Observatory.

Again, we wish to emphasise that this publication does not aim at analysing comparative education as such, as a science; rather, we will limit ourselves to the observations and analytical conclusions that can be drawn from the project itself. In this sense, we agree with Christoph Kodron, a German member of the Observatory, who wrote as follows when discussing new challenges of comparative education:

> « Je ne traiterai ni de comparaison internationale ni d'éducation comparée, en tant que discipline, car mon objectif est de montrer que les nouveaux défis du monde moderne nous imposent de développer systématiquement dans tous les secteurs de l'éducation une culture quotidienne de la comparaison. » (Kodron 1994)

The above analysis is intended to be further enriched and controlled by our own experiences as members of the Observatory. As Codron (1994) put it, « Comparer, c'est connaître ce qui vous est propre et se mettre à la place de l'étranger ». In this sense, comparisons are not focused on criticising others; rather, they are geared towards better understanding of others, and ourselves.

One more justification needs to be mentioned. Our aim is *not* to give a full and all-encompassing description and analysis of the Observatory; instead, our objective is to highlight some aspects of its activities, with a view to the Finnish perspective and with a special emphasis on the Finnish educational innovations. In this way, we hope this publication will further contribute to the Observatory as a nationally focused document of reflection and analysis, though, at the same time, firmly rooted in and respecting the reflections of the Observatory.

2. THE EUROPEAN OBSERVATORY

2.1 Structure of the Observatory

The Observatory consisted of three different groups of members, "organised by functions, without hierarchy" (Activity Report 1995, 15). First, **the pilot group** (le groupe de pilotage) had the overall responsibility to run the project and to be in contact with the European Commission. Its task was also to enable a regulated interface between the INRP and the participating institutions. This group consisted of Madame **Francine Vaniscotte**, the French chargée de mission-Europe at the INRP; Professor **Françoise Cros**, responsible for the scientific leadership of the Observatory; researchers from the INRP; a representative from the French Ministry of Education, and a representative of one French IUFM (Institut universitaire de formation des maîtres; Teacher Training Institute). (Cros 1998b, 7)

Second, **the scientific committee** (le comité scientifique) was commissioned to plan the scientific approach to be adopted and the measures to be taken to fulfil the scientific tasks of the project. The scientific committee consisted of the pilot group and ten education experts, both French and foreign, who usually met before the general meetings in which the national correspondents also took part. On the scientific committee, Professor Tella represented both Finland and other Nordic countries.

Third, **the management committee** (le comité de gestion) included the scientific committee and **the national correspondents** (les correspondants nationaux), one per participating country, who were commissioned to do the actual data gathering and analysis according to the instructions laid out by the scientific committee and the general meetings of the consortium. At the beginning, 14 EU countries were represented, but later Sweden and Luxembourg were not represented in the Observatory. Some national correspondents had a small network of local teachers or researchers in their own country.

An interesting detail to be mentioned is that at most general meetings, there was a representative (Madame **Fabienne Bessonne**) from the European Commission, which to us showed the keen interest that the Commission had in the operations of the Observatory.

The following table enumerates the main meetings of the Observatory and shows how Finland was represented at these meetings. In addition to these meetings, a number of scientific committee meetings took place, which, for financial reasons, were intended for the French members only.

TABLE 1. THE MAIN MEETINGS OF THE OBSERVATORY BETWEEN 1994 AND 1998.

June 1995	Paris, France • the first general meeting	Seppo Tella
February 1996	Saint Jean d'Angély, France • a general meeting • scientific committee meeting	Seppo Tella & Kirsi Tirri
May 1996	Dublin, Ireland • a general meeting • a scientific committee meeting	Seppo Tella & Kirsi Tirri
October 1996	Paris, France • a scientific committee meeting	Seppo Tella
January 1997	Saint Jean d'Angély, France • a general meeting	(no Finnish representatives)
February–March 1997	Bologna, Italy • a general meeting • a conference on comparative education • a scientific committee meeting	Seppo Tella & Kirsi Tirri
May 19997	Toulouse, France • a general meeting	Kirsi Tirri
January 1998	Frankfurt am Main, Germany • a general meeting • a scientific committee meeting	Seppo Tella & Kirsi Tirri
June 1998	Kolymbari, Greece • a general meeting	Kirsi Tirri
October 1998	Paris, France • the final report writing seminar	Kirsi Tirri

2.2 Name of the Observatory

The name of the project, 'An Observatory', sometimes led to questions of its real meaning. Some cautioned against it being used in an abstract way, not referring to any concrete observatory but rather to a consortium of people, "observing" things.

The problem was also discussed at some meetings and an explanation was written in the Activity Report in 1995; cf. also Change in Education 1997):

> "The dictionary states that an observatory is a place from which one can easily observe. This means that it is necessary to create the conditions for accurate observations [relative] to the field and its diversity. It covers the objectives of capitalisation[2] of actions in an operational manner—therefore it can be viewed as a centre of resources—and at the same time, the objectives of research studies which are inducive of resulting from the collection made by the Observatory." (Activity Report 1995, 9)

It was further noted that an astronomy observatory or a meteorological observatory is equipped with instruments for collecting information which provides a means of making sense of the collected elements. In a parallel way, the definition of a European Observatory can only be established by its operationality, viz. by answering the questions of its mission or objectives. (Activity Report 1995, 10)

The Observatory was further defined as a place assigned to:

- associate partners for the entire European Union with the common objective to facilitate the transformation of educational and training systems in Europe;
- provide everyone with a means to express his/her diversity, exchange common concerns, and inquire about evolutions of educational policy and contexts;
- make available to the educational and scientific community information and knowledge on the soon-to-be-made changes;
- be a resource centre at the disposition of the educational and scientific community, bringing information and knowledge of imminent changes;

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[2] The French term 'capitalisation' has been left in the English-language text, though it is a false friend, roughly meaning the dissemination of results of the Observatory.

- put into place a research system on innovation in Europe, based in particular on the principles of comparative education. (Activity Report 1995, 4)

Françoise Cros put it neatly by saying that "... [the] observatory ... is ... an organ of observation" (Cros s.a., 3).

In addition to the name of the Observatory, the concept of observation was analysed, especially at the beginning of the project: "Observation is a complicated activity. Consequently, the distinction between observers and observees will have to be analysed. The fixed objectives already show that there is not one observing category (privileged) and one observed category (passive). **Observation is an activity which has to be co-constructed** [emphasis added]." (Activity Report 1995, 10) This remark can be understood to point to an idea of social constructivism or co-construction of knowledge, though these constructs were not publicly discussed in the Observatory (cf. our comment on page 62).

2.3 Aims of the Observatory

The aims set for the European Observatory can be studied from different perspectives and from different levels. On the whole, one could argue that a very general goal was to **constitute a European network of researchers and educationalists in the field of comparative education**. This network aimed at linking the appropriate people, who were not selected according to clearly defined criteria but chosen to enable the structure of the Observatory to live and to function.

The expected or required competence of each participant was derived from his or her position and expertise in the relevant social and educational area, in order to fulfil the purposes of the Observatory. (E.g., Summary of reports on national surveys 1996, 3, 6) These initial conditions of forming the Observatory, naturally and inevitably, had a clear impact on the functionality and potentiality of the Observatory in the years to follow (cf. Chapter 5).

The structure of the network was initially divided into eight different components, each of which had something in common with the others (Summary of reports on national surveys 1996; also Sirota 1998, 25–26):

- An international scientific network, increasing one's credibility and scientific respectability locally or nationwide.
- A working network, for which common working modes and reference systems had to be built.
- A cross-disciplinary network, combining the different approaches linked to the social sciences and education with their specificities.
- An international network, reinterpreting specific national cultures and their functioning modes, reference systems and the characteristics of the educational system.
- A multilingual network, in which two languages dominate, usually French and English, leading possibly to the neglect of some specificities represented by other European languages.
- A European network, in which the notion of European space is based on comparative presuppositions resorting to construction models, most of which might still be implicit and highly dependent on each member's own conception of the European identity and the European Dimension.
- A relationship network, with embedded psychological phenomena specific to group life and to the management of power relationships, possibly jeopardising—or empowering—the abovementioned stakes.
- An institutional network, leading, perhaps, to a functioning mode specific to European management organisms in terms of production deadlines and financing modes within a dual temporality of random urgency and infinite temporality.
  (Based on Summary of reports on national surveys 1996, 8–9)

The above classification of various components of a network are cited in order to illustrate the divergent pressures brought about by the Observatory to its members. On the other hand, a multi-level and multi-dimensional network also proved an empowering tool or mediator which helped to implement the objectives of the Observatory.

Some of its initial unstructured nature of the Observatory felt by some of the participants was aptly, if jokingly, captured in descriptions of the Observatory as being "an unidentified scientific object" (Summary of reports on national surveys 1996, 11) or "an unidentified academic object" (Change in Education 1997, 31).

2.4 Major Tasks and Themes of the Observatory

The Observatory formulated six major tasks (Cros 1998b, 6) that guided the implementation of the action plan of the project:

- Gathering and analysing information about innovation,
- Paying attention to conditions of change and identifying key ways of innovation dissemination,
- Networking innovators in order to help them deal with innovations at a theoretical level,
- Facilitating and disseminating innovations at the European level,
- Clarifying and confronting national or regional innovation policies, and
- Sharing and distributing conceptual information and knowledge about innovations.

Originally, five themes were identified to guide the work of the Observatory (Activity Report 1995):

- equal opportunity for all children, notably concerning the immigrant, migrant and/or socio-culturally disadvantaged milieus;
- the development of linguistic competencies, by learning modern languages and promoting inter-cultural communication situations;
- the emergence of European educational project staff co-ordinators, or the emergence of staff in charge of exchange and mobility actions and assigned to play an important role in the school and training establishments;
- the training of teaching personnel in the preparation of change and in their sensitisation to the personal and professional future of the students who are entrusted, in the context of a European Union which requires greater and greater competencies;
- the training of administrators and supervision staff, key actors in the improvement of teaching quality thanks to a pedagogy based on projects in schools which are widely open to local and European environments. (Activity Report 1995, 4–5)

Gradually, these five themes were merged into three that were then analysed until the Observatory completed its activity tasks:

- Equality of opportunities (égalité des chances),
- Foreign language and intercultural learning (l'apprentissage des langues, la médiation culturelle et la formation à la dimension européenne),

- Training of teaching personnel (la formation des personnels de l'éducation et de la formation).

The Finnish emphases were mostly on "equality of opportunities" and "training of teaching personnel", though some attention was also paid to the foreign language component and modern information and communication technologies (cf. Chapter 4).

In fact, modern information and communication technologies (MICT) and distance education was one of the extra themes (« approches complémentaires » or « thématiques chaudes », Vaniscotte 1998, 53, 58) that were brought up, especially by the Finnish representatives, but which were never followed up systematically in the activities of the Observatory. Other "hot topics" included the aspects of centralisation, decentralisation and autonomy of educational institutions and the issues related to curricula.

2.5 Modes of Action of the Observatory

The aim of this chapter is to give a general overview of the various modes of action used in the Observatory (summary based on Cros 1998b, 8–10). The overview will be divided into four periods, according to the years during which the Observatory was operational.

During 1994–1995, the preparatory work was done by the project co-ordinators in order to build up the theoretical and practical framework for the project. The main tasks carried out included

- Studies in national innovation policies (Tirri 1996; also Tirri 1998)
- Preparation of national case studies, carried out in 1996–1997
- Gathering bibliographical data on innovations for the French NOVA databank.

From the Finnish point of view, the first academic year of the Observatory was characterised by a tentative contact made by Professor Tella with the first general meeting in Paris in June 1995 as the Finnish national correspondent. As Professor Tella was invited to join the Scientific Committee soon after the meeting, Dr Tirri was asked to act as the National Correspondent, starting from August 1995.

During 1995–1996, the Observatory was fully operational and achieved most of its objectives. The general activity was focused on three major challenges: coherence, consistency and continuity. The main activity tasks carried out included

- Questionnaires and interviews with national educational authorities
- Summarising the main findings of the above interviews
- Drawing up the guidelines (une grille d'enquête) for the case studies
- Drawing up the transversal themes (cross-thematic topics) derived from the original five themes
- Building up a European culture around innovation
- Working on a common thesaurus covering writings on educational innovations.

The first scientific report was compiled during this period (cf. Scientific Report 1996–1997).

From the Finnish point of view, this period was full of action and expectations. Dr Tirri carried out the Finnish interviews with seven educational experts and reported the results to the Observatory. Professor Tella carried out an enquiry (not published) about foreign language teaching by using the Finnish teacher educators' mailing list and forwarded some initial results to the language group of the Observatory.

During 1996–1997, the Observatory concentrated on (i) disseminating the first research findings based on studies carried out in 1994–1995; (ii) analysing the national case studies, and (iii) organising a seminar on comparative education.

From the Finnish point of view, the activities of the Observatory seemed to advance rather slowly, as Dr Tirri had already carried out the necessary studies and analysed the results. An article was written for a research conference (Tirri & Tella 1997). Professor Tella and Dr Tirri attended the comparative education seminar in Bologna.

During 1997–1998, the Observatory (i) elaborated on and defined the transversal components of the concept of innovation; (ii) looked for further links between the national case studies and the national reports; (iii) continued to constitute a common thesaurus; (iv) took advantage of the Internet by uploading all necessary documents to the INRP server [http://www.inrp.fr], and (v) finalised the reports and documents produced up to then.

In the opinion of the Finnish participants, the Observatory was in a state of expectancy; nobody seemed to know exactly what would happen and when. One of the Observatory meetings was relatively chaotic. Dr Tirri flew to Paris in the autumn of 1998 to write part of the final report. Professor Tella regretted not having had a better chance to contribute to the scientific reports of the Observatory. It seemed that many English-speaking members of the Observatory could not attend one or two of the last meetings.

To sum up, the lifespan of the Observatory was rather long when compared to most other European Union-based projects. However, this enabled a more thorough and wide-ranging setting of objectives. Considering the large number of participating countries in the Observatory and the ambitious aims and goals set for its activities, it is only fair to commend the project co-ordinators and all organisers on their high-quality work, patience and expertise shown during the four years of the Observatory. Quite clearly, a solid infrastructure has now been constructed, which would undoubtedly enable a fruitful continuation of the project in the years to come.

3. EDUCATIONAL INNOVATIONS

3.1 The Concept of Innovation as Seen by the Observatory

3.1.1 General

In the following, the key concept of the European Observatory, **innovation** in education and training will be analysed. The analysis is based on the work done within the Observatory itself, and therefore we do not aim to cover all interpretations of the concept in other contexts. However, our analysis is extended to describe a fair number of near synonyms and equivalents used in different participating countries.

The concept of innovation had been discussed by the French initiators of the Observatory even before the first general meeting in Paris in June 1995, when it aroused a lot of hectic debate. The following analysis is based on the Observatory's Activity Report (1995; also Cros 1998a).

The concept of innovation has divergent meanings and uses depending on the country involved. In some cases, it can be close to reform; in others it is marginal. These different uses are linked to the language (in Germany, this term is rarely used; in Italy the term experimentation is often employed), the political and social structure, and the culture of each country. Within the INRP, a database called NOVA was developed to cover all written work on innovation in education and training, leading to a French thesaurus, i.e., a controlled vocabulary of words semantically related to one another, and applied to innovation in education and training. The Observatory was able to profit from the background ideas of this group. Initially, the concept of innovation was analysed under six facets (Activity Report 1995, 6–7; Compte Rendu des interventions, débats et échanges de la réunion du comité scientifique 1995):

3.1.2 Innovation as a Novelty

When innovation is evoked, the INRP working group argued that it often reminds people of something new, something that has never been done or existed before. In the field of technology, innovations can often be located and even seen or touched, while an innovation in education is more abstract. "What is this new thing? Is it a relative 'new', that is to say old but used like something new; in this case, who decides what is new? Therefore, entering innovation only through the absolutely 'new' is assimilating it into invention or discovery, and apart from the great pioneers such as Montessori, Freinet or Dewey, there would be no innovation. However, it seems that innovation is within everybody's reach. It is therefore, a very relative, ephemeral and localised 'new'. This 'new' is often inscribed in a social recognition. Defining innovation only by the 'new' is therefore not pertinent." (Activity Report 1995, 6)

3.1.3 Innovation as a Product

The INRP group further contended that novelty most often takes the form of a product, a substance that has an innovating virtue. According to them, this viewpoint is inspired by the economic, industrial or commercial aspects of an innovation. This vision is inspired by a metaphor from a consumer society, where the product is identified with the innovation. In the particular context of education and innovation, *one cannot be satisfied only with a vision that would set degradability as the only constant of innovation* [emphasis in the original]. (Activity Report 1995, 7)

3.1.4 Innovation as a Change

Innovation also implies a certain type of change, referring to a desired or undesired transformation (the passage from one situation to another). Innovation is a voluntary change; therefore, not all changes are necessarily innovations. (Activity Report 1995, 7)

3.1.5 Innovation as an Action

"Innovation is the product of an action thought and reflected upon by individuals, groups or institutions. *It is composed of finalised social actions* (some, to make a pun, say *innovaction*). Research working on innovation *per se* is action research: it follows the new action in its unfolding and even assesses it." (Activity Report 1995, 7)

3.1.6 Innovation as a Process

The INRP group sees innovation as something more than an action because it is finalised and, at the same time, it lies within a particular context that attenuates it and helps resort to other actors and to a multiplicity of actions. "In other terms, the process extracts the innovation out of the causal conception strongly linked to the action, because the action necessarily conveys a dependence relationship between the action and the actor or between the work and its author. *The process, a sequence of events linked to the uncertainty, corresponds more to innovation* [emphasis in the original] (we collect numerous stories of innovation depicted like epics or adventures, with episodes and surprises)." (Activity Report 1995, 7)

3.1.7 Innovation as an Intention

The INRP group finally argued that "any innovation is carried by an intention to do something which is meant to be better for the authors, to do good to others, sometimes against their will. This *intentionality is the driving force of innovation.* The idea of improvement, nevertheless, is entirely relative and linked to the authors themselves. Innovations, the authors of which laid claim to improvement but which eventually turned out to be disastrous or even harmful, could thus be observed. The idea of improvement is strongly subjective and supported by values which can be contested at any moment. When innovation is based on a social group, it is difficult to dissociate general interest from individual interest and from singular interpretations." (Activity Report 1995, 7)

3.1.8 The Definitions of Innovation within the Observatory

In short, the INRP group ended up with a working definition of the concept of innovation which was used by the Observatory as a starting point when discussing the concept itself and its near synonyms:

"Innovation in education and training is a process coming under one or several intentions to introduce a change in a structure, in a system or in a practice of education and/or training." (Activity Report 1995, 8).

In our understanding, the discussions that took place in Paris in June 1995 contributed to the reformulation of the definition of innovation. The change was further accelerated by questions of these kinds:

> "It seems important to agree on what we consider an innovation, who decides? We should distinguish improved innovations (reforms) and innovations coming from the base and supported by the actors' enthu-

> siasm (this enthusiasm cannot be decreed). The problem of values implying innovations must be examined, because all innovators aspire to improvement. Though better in comparison to what? These two types of approaches are complementary, so that their connection allowed the Observatory to bring out a definition of innovation in education and training which suits the structure and culture of each country." (Activity Report 1995, 9)

One more aspect was taken into consideration when a revised definition was sought, namely the fact that the final definition had to be simple enough to be translated into all European Community languages. The final definition of innovation reads:

Innovation = "a collective creation of original solutions, responding to (new) needs" (Activity Report 1995, 9)

The same definition appears in the Final Report of the Observatory in the following way:

Innovation = « création collective de solutions originales répondant à des besoins nouveaux » (Cros 1998a, 32)

The members of the Observatory accepted this definition as their working definition for the national reports and for the national case studies. It was a general understanding that this kind of definition helps the Observatory identify and locate educational innovations. Two comments are still needed regarding the final definition. First, it emphasises a collective creation, instead of allowing an individual or individualistic creation. This restriction should perhaps be understood in an educational context. The Observatory was keen on identifying educational innovations in educational contexts, which often refer to institutionalised school settings and other institutions. Professor Cros (1998a) analyses this aspect by underlining the importance of the actors involved: « … l'innovation individuelle semble exclue du champ d'observation. Il s'agit bien de collectifs de personnes, voire d'équipes ou d'institutionnels. Il y a là une volonté d'inscrire l'innovation dans l'organisation et de la rendre visible par le nombre de personnes engagées » (Cros 1998a, 32).

According to the above definition, a creative thought, for instance, is not an innovation. An innovation requires more, something original to start with. There is an interesting difference between the original English-language definition and the latest French-language definition with regard to the use of the adjective *new/nouveau*. In 1995, the Observatory was not quite convinced that the needs that an innovation would meet should be new, while the French definition takes this for granted.

In 1995, however, the Observatory was content with the definition, which was expressed as follows:

> "We thus moved from a restrictive definition to a more European definition including the practices of the different community countries. This is what we called the 'semantic surface' of innovation in education and training. Such a process allows respect for the representations of each country and, at the same time, highlights the common elements and the specific components leading to a rich, open comparative study and to the elaboration of a European culture." (Activity Report 1995, 9)

It was also soon understood that there are different types and levels of innovations. This was taken up by the English national correspondents (Teasdale & Roberts 1998) by dividing innovation into four broad categories:

- Innovation as policy/systems reform.
- "Catalytic innovation", driven by government reforms, where systematic change is introduced to alter contexts and to create the need for further systematic change. Innovation at one level produces innovation at another.
- "Responsive innovation", where institutions such as universities and advisory bodies have to respond to legislation and other "top-down" initiatives.
- "Grass roots"-driven innovation, e.g., an independent initiative by local education authorities, a school, a college or an individual teacher in response to their own contexts. (Teasdale & Roberts 1998, 326)

What is interesting in this categorisation is the extension of innovation from large-scale reforms to "grass roots"-driven local experiments. It would now be important to see how 'innovation' was interpreted in "real life" and what the research results of the national case studies were. The Finnish interpretations will be discussed in detail in Chapter 4. Below, we will present some observations regarding other terms and other countries.

3.2 Innovation and Its Near Synonyms

3.2.1 Ontological, Epistemological and Axiological Problems

Even if 'innovation' was the term used from the very beginning of the Observatory, it was understood that the same phenomenon, or the same concept, was called differently in different European Union countries. This was soon realised to be **an ontological problem** because too restrictive a definition might have overshadowed or put aside a national phenomenon, only because people and researchers in that country would have used a different term. This might have meant that a phenomenon, an 'educational innovation', could have existed in a certain country, i.e., it would have been 'true' and 'authentic' ontologically, but it would have been left out of any list of innovations produced for the Observatory. This kind of state of affairs would also have brought about **an epistemological problem**, as the information—and the knowledge to be derived and generated from it—would have been wrong or misleading. Overlapping these two problems was a third one, **the axiological problem**. Related to values, certain phenomena might not have been considered as innovations, as they might not have been embedded with those values that a certain national, regional or local authority had in mind.

The way the Observatory tried to do away with these three problems—ontological, epistemological and axiological—was simple but efficient. The national correspondents were urged to gather all necessary terms and concepts related to educational phenomena that are called innovations in this report. The data would then be analysed in order to find out the spectrum of different terms, together with their main meanings (denotations) and possible side or extra meanings (connotations).

3.2.2 Some Synonyms Used for Innovation

In the following, we will report some of the findings the Observatory made with regard to different terms and concepts used in the participating countries. The terms are given in French (based on Cros 1998a, 36–37), with the corresponding English terms. Some more terms will be extracted from the English national report (as cited in Teasdale & Roberts 1998; cf. Table 3).

The following terms were used in place of an innovation:

Table 2. Terms used in Different Countries for Innovation (Cros 1998a, 36–37; translations into English by Seppo Tella).

The French term	The English translation	Countries in which the term was used
ajustement	adjustment	England, Germany
amélioration	improvement, betterment	England, Denmark
« building on » (améliorer les bonnes pratiques existantes)	"building on" (ameliorate good existing practices)	England
développement	development	Germany, England, Denmark, Finland, Ireland
essai/étude pilote	pilot study	Denmark, Germany
expérience positive	positive experience	Portugal
expérimentation	experiment, experimentation	England, Germany, Denmark
extension (élargissement de quelque chose)	extension (enlarging, widening something)	England
idées nouvelles concrétisées	new ideas put into practice ("concretised")	England
initiatives	initiatives	Portugal
modernisation	modernisation	Austria, Germany
recherche expérimentale	experimental research	Denmark
réforme	reform	Germany, England, Austria, Belgium, Spain, Finland, France, Greece, Italy, Portugal
renouveau, renouvellement	revival, renewal, increase	England, Austria
rénovation	renovation, renewal, restoration	Spain, France
réussite	success	France

The English National Report (Teasdale & Roberts 1998) gives examples of explanations of some of the terms in Table 2. These examples are used here to give more context to the central terms that circumscribe the concept of innovation and, at the same time, serve as near synonyms for that concept.

TABLE 3. EXAMPLES OF EXPLANATIONS OF SOME NEAR SYNONYMS FOR INNOVATION (TEASDALE & ROBERTS 1998, 325).

The English term	Examples of explanations
adjustments	people at all levels innovating ... making adjustments
building on	others are building on and developing the best of existing good practice
change	people at all levels innovating ... making changes ... planned external change ... planned change, which seeks to interrupt the natural development of events ... external change ... what others would do to us, to our school
development	people at all levels innovating ... development and redevelopment
experiments	some are brand new innovations, experiments ... trying out new ways of doing things ...
extension	something which involves extending the range ... in one way or another ... something to do with extension
improvement	I think it's change for improvement ...
new ideas	innovation—the successful exploitation of new ideas
reform	at the level of structural innovation ... reforms of curriculum, reforms of the management structure of schools, reforms of funding arrangements, you name it ... it's been reformed ...

In the Irish context, as reported by Leader, Murphy & Boldt (1998, 350), the key words associated with innovation were change, new, process, development and introduction. The majority of Irish respondents understood innovation as change: "behavioural change", "attitudinal change", "constructive change", deliberate change", introducing change", "change processes", and "change in approaches or thinking".

One of the findings of the Observatory was that there was no country involved in the Observatory where only one concept was used (« Nous avons pas vu un seul pays qui parle d'une seule voix en ce qui concerne l'innovation » (Cros 1998a, 32). The concept of innovation is too complex, too « polysémique » (Cros 1998a, 32), to cover all different representations of an innovative phenomenon. Another important observation was made by the Irish representatives in the Observatory when they argued that an innovation in one country or system may have existed in other countries or systems, but it would still be considered an innovation in the first country:

> "It is important to note that innovation in education can be said to occur in one system even if the actual activity or innovation is not new or in-

> novative outside that system. In other words, if Spain introduces an educational approach which has been in existence for fifteen years in Finland, it seems that approach in Spain can be considered innovative. Although innovation by definition seems to imply that something new is introduced, it does not seem to be necessary that the innovation is original." (Leader, Murphy & Boldt 1998, 350)

In Cros' interpretation (1998a), innovation is a mediator (le médiateur) between an authority-sponsored reform and an experiment initiated by grass-root-level actors, even if this experiment had been started by the authorities. Thus, innovation consists of a semantic constellation of being close to teaching practices or "grass roots" and being seen as a process of change. If a generalisation is allowed, based on what educational authorities stated in different interviews in the member countries of the Observatory, innovation is, *grosso modo*, geared towards the "practitioners" of the teaching and training profession rather than towards politicians. (Cros 1998a, 39) And Cros (1998a) concludes:

> « En conclusion, le terme innovation est porteur d'une multiplicité de sens subtils qui lui permettent d'être utilisé aussi bien par les responsables politiques que par les praticiens, il essuie parfois les échecs des politiques passées et il recueille, le plus souvent, les louanges d'attentes émancipatrices du pays grâce à une école de plus en plus performante. » (Cros 1998a, 40)

Innovation is supported by convictions, thoughts and eschatological views of the society (Cros s.a., 13). Heidemann, Tertrais & Tirri (1998, 41) contend that in the first place it is the global reforms decided upon by the authorities that create conditions of existence for an innovation. Clearly, one decisive factor was the relative focus on either centralisation or decentralisation as shown in different participating countries of the Observatory. Vaniscotte (1998, 49) therefore cautions against too far-reaching conclusions based on the data accessible to the Observatory:

> « Bien qu'aucun pays de l'Union européenne ne soit actuellement totalement centralisé, les approches varient considérablement selon le niveau de centralisation ou de décentralisation de chaque État. Chacun s'accorde bien à souligner le mouvement de décentralisation donnant une autonomie de plus en plus grande aux établissements et aux autorités locales, mais les modes de gestion et de maîtrise des politiques de décentralisation sont à ce point diversifiés que les comparaisons possibles à partir des informations recueillies auprès des autorités nationales demandent la plus grande prudence. » (Vaniscotte 1998, 49)

According to Cros' synthesis (1998a), **reform** is the term most often used by authorities (10 countries out of 13) instead of or as a synonym for innovation. Three countries do not use the term 'reform': in Denmark innovation traditionally started at the grass-root level (Heidemann 1998, 263); the Netherlands speaks of 'national projects', and Ireland avoids the term 'innovation', « par suite d'expériences malheureuses d'étatisme central » (Cros 1998a, 37). Italy prefers 'a general change of her educational system' and Spain 'a general innovation of the educational system'. Reform, then, seems to imply a change coming from the centre (central administration) or an innovation generated by the hierarchy. (Cros 1998a, 37)

Experimentation is used by seven countries, **development** by five. These five countries represent Northern Europe, with an emphasis on Anglo-Saxon and North-American cultures. Cros (1998a) expounds the situation of these five countries in the following manner: « Ces [cinq] pays sont ceux du nord de l'Europe, marqués par la syntaxe anglo-saxonne et nord-américaine qui évoque la transformation du système éducatif comme un développement par rapport à une norme qui se veut neutre et que les pays ‹ sous-développés › ou ‹ en voie de développement › devraient atteindre » (Cros 1998a, 37).

Cros (1998a) argues to have found a certain paradigmatic model in the meaning of innovation in different EU countries. However, in some countries it evokes the past, and not necessarily in a positive spirit; in others, it implies that certain European-centred educational structures are being imposed on them. In these cases, innovation could enable the European Commission to suggest a certain spirit peculiar to Europe (« ... de proposer une forme d'esprit propre à l'Europe » [Cros 1998a, 33]). In Germany and in Denmark, innovation seems to include the idea of a new concept brought about by Europe but still understood in a national context. In Austria, innovation is regarded as a "terminus technicus" used by the decision-makers or as an English idiom brought into Austrian German to be used in international contexts promoted by organisations like OECD. (Cros 1998a, 33) In Ireland, innovation is regarded as a term coined by Brussels: "Innovation is a buzz word which was made fashionable in the 1980s by the Brussels authorities who used it as one of their criteria for funding programmes" (Leader, Murphy & Boldt 1998, 351).

Regardless of certain negative connotations and implications, a few commonalities arise from the interpretations of an innovation. These common features include the ideas of novelty, progress or betterment, as well as the questions of power and change. Novelty is often related to creativity, though it may also refer to an original situation as such, in which routine-like practices are questioned and in which the opposite of repetition is strongly underscored and values reassessed. "Innovation is a creative process that breaks down established paradigms" (a comment from Ireland; cited in Cros 1998a, 33). Innovation is seen to have an empowering potential that becomes concrete in action. Innovation is also understood to contribute to quality assurance, at least to some extent. (Cros 1998a, 33–34)

Not all comments from the 13 participating countries and their educational authorities were favourable to innovation. Cros (1998a) cites Irish and Austrian statements, summarising the situation in Austria thus:

> « [En Autriche,] stabilité et harmonie sont des valeurs socialement estimées tandis que des mots comme réforme ou changement, avec leurs potentiels conflits ont une connotation latente négative. » (Cros 1998a, 34)

The Austrian national correspondent elaborates on the situation in his country as follows: "[In Austria,] stability and harmony are highly esteemed social values, while 'reform' and "change', with their conflicting potential, have a latent negative connotation. The prevailing notion of school reform is not the permanent adjustment of the education system to the changing needs of a dynamic democratic society but occasional major legislative efforts ('legal milestones') followed by long periods of consolidation during which schools are supposed to be 'left in peace'" (Grüber 1998, 235).

3.2.3 Examples of Attitudes Towards and Interpretations of Innovation in Different Countries

The use of power is closely related to the implementation of any educational innovation. In this chapter, a few generalisations will be presented, with regard to a number of countries in Europe. The summary below is partly based on Cros' (1998a) analysis and partly on the national reports. It runs the risk of oversimplifying the situation in these countries as it reduces still further the original material presented in full in the national reports. In addition, it reflects the Finnish perspective, since we have selected viewpoints and ideas that we find important. It must also be borne in mind that even if school authorities were interviewed in different EU countries, the comments were finally written by the national correspondents, whose way of writing and whose own views might have influenced some of the opinions. On the other hand, all national correspondents asked the same questions, so the basic database gathered during this stage of the Observatory is relatively uniform and extensive.

3.2.3.1 *Austria*

In Austria, at the moment, the term 'innovation' is not used. It also appears that all control lies in Parliament and in the Ministry of Education (top-down strategy): "A hypertrophy of the principle of *Rechtsstaatlichkeit* (administration regulated by law) and the dominance of jurists in the Ministry of Education have led to an all-pervasive codification of educational decision-making and reduced the professional freedom of teachers to the small domain of classroom pedagogy. Parliament and the ministry are perceived as the only legitimate agents for any kind of change or innovation—organisational, curricular or otherwise." (Grüber 1998, 235)

3.2.3.2 *Belgium*

In Belgium, the situation varies between the Flemish and French-speaking parts. In Flanders, "educational state policy ... is mainly concerned with 'reforming' ... the structural and legal conditions within which schools and teachers have to operate. Very little attention is paid to the initiation and stimulation of 'innovations', i.e., new practices aimed at improving the teaching/learning processes at the local level." (Kelchtermans & Paquay 1998, 247) This does not mean that there are not any local-level innovations. Policy makers use innovation only when referring to the possibilities of innovative practice established at the school level. (Kelchtermans & Paquay 1998, 251) On the whole, it seems, innovations are often taken for practices, controlled and supervised by the Government, leading, on several occasions, to turbulences at the local level: « ... les réformes réalisées par le gouvernement occasionnent de la turbulence et de l'insécurité, elles impliquent en même temps des opportunités pour l'innovation éducative, dont les écoles, au niveau local, peuvent s'emparer » (Cros 1998a, 38).

3.2.3.3 *England*

In England, it seems that the Government wishes to have innovative activity well controlled so that there appears to be a front between Government-sponsored innovations and innovations generated from below. Teasdale & Roberts (1998, 326) point out that "[during the interviews] the single most frequently used term was 'change'.

Other terms were sometimes used more specifically, as in the case of 'extension' which was in direct relation to language teaching and learning (King, CILT)." Teasdale & Roberts (1998, 326) further cite Hopkins et al. (1994), who underline the importance of precise terms to be used in education: "[whilst it is possible] to use the terms 'reform', 'change', 'planned change' and 'innovation' interchangeably … it is important to remember that innovation, the adoption and use of specific educational ideas and practices, has a more precise meaning". Innovation was usually associated with positive ideas and linked with success or improvement, along with changes for the better, effectiveness and excellence. One informant warned of the error in assuming that innovation automatically collocates with excellence and improvement. There was also an awareness of a general innovation fatigue as a specific reaction to the government, systems-based innovations. (Teasdale & Roberts 1998, 327)

3.2.3.4 *France*

In France, the division of power between the central government and the schools seems to vary according to different institutions. There are examples of institutions now in which initial and inservice teacher education have been incorporated, enabling various kinds of constellations of innovations. Hugon (1998) notes that common parlance assimilates innovation into educational contexts and associates it with various changes in school-going patterns:

> « Dans le langage courant, la définition la plus fréquente assimile innovation dans le domaine de l'éducation et de la formation et nouvelle mesure ministérielle comme en témoigne ce titre de la presse commentant la rentrée scolaire 1995–1996: ‹ Les réformes de la rentrée concernent l'école primaire et le collège : nouveaux programmes et début d'initiation aux langues vivantes dans les 'petites classes', transformation de la sixième : telles sont les innovations de cette année scolaire … › » (Hugon 1998, 303)

3.2.3.5 *Germany*

In Germany, the word 'innovation' has a stronger political connotation than, say, in France, and its use evokes less positive memories. The situation varies from Land to Land; it is difficult to speak of any national policy of innovations: « Le compromis est la règle » (Cros 1998a, 35).

3.2.3.6 *Greece*

In Greece, innovations are made by the central administration, while local level innovations are somehow discouraged, which is bound to lead to a paradoxical situation (« une parfaite injonction paradoxale » [Cros 1998a, 35]). In Greece, both terms—innovation and reform—can be used, but innovation always has an institutional and generalised character.

3.2.3.7 *Ireland*

In Ireland, the system of education manifests strong elements of centralisation while at the same time the autonomy of local institutions is acknowledged. Innovation was seen to involve the identification of approaches and ideas, the testing of these approaches and ideas, and their integration into a system or structure. There was wide agreement among interviewees that there is no national or official policy on innovation in Ireland. (Leader, Murphy & Boldt 1998, 347–351) Innovation may also take place as a response to emerging needs, in a fortuitous and sometimes opportunist rather than planned way, which Cros (1998a, 36) aptly calls a kind of « adhocité », expressed by either local actors or central administrators.

3.2.3.8 *Italy*

In Italy, the system is very centralised and innovations are seen as something outside educational institutions. Innovation is regarded as the consequence of an experimentation, i.e., one tries first in a restricted context and then, on a larger scale, one "innovates".

3.2.3.9 *The Netherlands*

In the Netherlands, changes in culture and school structures are made only when authorised by upper-level authorities. (Cros 1998a, 35–38) The national correspondent, Bernd Bonnier (1998, 386) underlines the diversity of interpretations regarding the concept of innovation, and points out that the majority of respondents had difficulty in getting to the root of innovation. Two even thought that innovation was concerned with inner changes in the individual.

3.2.3.10 *Portugal*

In Portugal and in Spain, different prizes and "carrots" are offered to those innovations and innovators that go in the direction indicated by the authorities (Cros 1998a, 35). In Portugal, the school authorities appear to make a distinction between 'reform' and 'innovation' in the sense that the latter refers to a local-level decision and action that takes place at the institutional level (da Silva 1998, 409).

3.2.3.11 *Spain*

In Spain, innovation is a permanent condition for a reform. In other words, in Spanish educational parlance, innovation is the concrete realisation, in the field, of the reform imposed by the authorities.

3.2.3.12 *Denmark*

In Denmark, 'innovation' is a relatively new concept at the national level, though traditionally it was often used to refer to grass-root-level, school-based experiments, often without any written report to the "top". The biggest national innovation project in Denmark took place between 1987–1991 and concerned the act on the *folkeskole* (Heidemann 1998, 263). Currently, it is used more frequently in newspaper articles than in educational journals. Cros (1998a, 35) estimates that contrary to teachers in most EU countries that participated in the activities of the Observatory, Danish teachers seem to have a certain amount of power to implement their own innovations in an experimental and creative spirit.

3.2.3.13 *Finland*

When contrasted with Denmark, Finland is in a similar situation, which will be discussed in detail in the following chapter.

4. THE FINNISH EXPERIENCE REVISITED

4.1 The Finnish National Report

The first official report requested by the European Observatory was a National Report from each participating country. The purpose of these reports was to have a current overview of the national policies affecting educational innovations in each country. The Finnish National Report was published both electronically (Tirri 1996) and as a part of the final report (Tirri 1998).

The Finnish National Report had three main aims. First, it presented an analysis of the interviews made in November and December 1995 in order to gather information on "innovation", the key concept of the European Observatory. Second, it gave some basic information on the Finnish educational system to be used by other partners of the Observatory. Third, it aimed at identifying some of the major educational innovations in Finland, which, at a later stage, served as Finnish case studies.

The Finnish national report gave an administrative point of view of some educational innovations in Finland. The empirical data included opinions of seven leading civil servants or educationalists who had an influential position in the official educational decision-making. In the following section, these interviews will be analysed and expounded in a more detailed manner than was done in the national report itself.

4.2 The Finnish Interviews

As our first goal, we aimed at gathering information on Finnish educational innovations as expressed by a number of educational civil servants and educationalists in Finland. Our primary goal was to find out about the official policy concerning current or ongoing educational innovations in Finland. For this purpose, seven interviews were carried out by Dr Kirsi Tirri in late 1995.

Through a pragmatically and theoretically informed selection (instead of probabilistic sampling; cf. e.g., Goetz & LeCompte 1984, 8), seven respondents (interviewees) were chosen from three different institutions to illustrate the official opinion of the organisations they represented. A structured questionnaire based on the general guidelines agreed upon in the Observatory was designed, including five questions about educational innovations. The questionnaire was sent to the interviewees before they were contacted personally. Six of the seven persons agreed to be interviewed, one of them, however, answered the questionnaire in writing.

4.2.1 The Interviews

The data included opinions of seven leading civil servants or educationalists and therefore was likely to represent an administrative point of view on educational innovations (Tirri & Tella 1997). This limitation has to be borne in mind, and we acknowledge that any opinions expressed by teachers or pupils might have differed substantially from the opinions of the interviewees. However, we found it appropriate to initiate our survey by exploring the viewpoints of those who had influence on the official educational decision-making.

4.2.2 The Finnish Respondents

The seven respondents represented (i) the Finnish Ministry of Education (three persons), (ii) the National Board of Education, which is a national agency reporting directly to the Ministry and which has both administrative and pedagogical tasks to fulfil (two persons), and (iii) The Teachers' Professional Union (two persons). The respondents were estimated to be very influential persons in their respective organisations. The persons to be interviewed were first suggested by Dr Tirri, then discussed and decided between Dr Tirri and Professor Tella and finally interviewed by Dr Tirri. The respondents were interviewed in Finnish. All extracts of the interviews cited in this publication have been translated from Finnish into English by Dr Tirri.

4.2.3 The Research Instruments

The data gathering instrument in our survey was a structured questionnaire sent in advance and then followed by an interview. The written questionnaire consisted of five questions.

> 1. How would you define the concept "educational innovation"? Feel free to indicate synonyms or any other concepts closely related to innovation.

2. Indicate some educational innovations which you consider the most important in Finland during the past five years.

3. How does your institution identify a potential innovation in education? Please tell something about the methods and resources you use to find and identify educational innovations.

4. In what ways does your institution attempt to spread and support an innovation once it has been identified?

5. Suggest an innovation in education that we would follow in Finland and report to the European Observatory. Mention a theme and a potential place for investigation (school, municipality).

The questionnaire was sent to the respondents in advance with a description of our study and some information on the European Observatory. After having sent the questionnaires to the persons selected, Dr Tirri contacted them again by telephone and made appointments for the personal interviews. As mentioned above, six of the seven respondents were then interviewed, while the seventh sent his answers by mail.

Each interview lasted approximately 30 minutes and took place in the office of the interviewee. In addition to the five questions above, an extra question was asked regarding teacher education (the qualities of a future teacher and the future challenges for teacher education). All interviews were recorded and later transcribed.

4.2.4 The Data Analysis

The method used in analysing the data was a content analysis with a special emphasis on conceptual traits in the answers, i.e., we paid special attention to key concepts used by the interviewees. The questions from the questionnaire with the voluntary question constituted the item categories used in the data analyses. The data matrix is presented in Appendix 1. When analysing the interviews we identified the following eight categories:

1. Affiliation of the interviewee
2. His/ her professional or personal viewpoint
3. The concept of educational innovation
4. The recent innovations in Finland
5. The identification process
6. Ways to spread and support innovations
7. The innovations identified
8. Emphases on teacher education.

In the following, we will discuss the findings of these interviews by emphasising the innovations identified. We will allow the voices of the interviewees to be heard by presenting some direct quotations from the interviews (the 'low inference' level of a polyphonic sound).

4.2.5 The Educational Innovations Identified in the Interviews

4.2.5.1 Curricula

Curricular redesign characterises all levels of education in Finland. It is closely connected to other megatrends, such as decentralisation and deregulation, both also emerging in some other countries of the European Union. Decentralisation implies that decision-making, concerning both the organisation and the content of general and vocational education, has mostly been transferred to the municipalities. At the national level, only general guidelines are provided for the framework of steering education. The new framework curricula for the comprehensive schools and for the senior secondary schools were approved in 1994 by the National Board of Education (Framework Curriculum for the Comprehensive School 1994; Framework Curriculum for the Secondary School 1994).

The respondents interviewed recognised and acknowledged the importance of the curricular changes. Four persons out of seven identified curriculum-related areas as the most important recent innovations in Finland. The topics were reflected on these comments taken from the interviews: "more power to municipalities in designing the curricula" (I 2), "curriculum integration" (I 3), "municipality-based curricula" (I 4) and "increasing opportunities for teachers to plan their teaching" (I 7).

One of the respondents, who identified curricular changes as the leading innovation in the Finnish context, justified his opinion in the following way:

> "The first innovation that comes to my mind is the new curriculum. I find the new municipality-based curricula as a big change in a centralised system where the curricula for secondary school were tightly national and centralised. This new curriculum reflects an administrative culture that gives more freedom to the schools. This new freedom allows each school to create its own profile in its curricula. However, they all include some common material in their school-based profile that comes from the national curricula. " (I 4)

4.2.5.2 *The Emerging Concept of Man, Knowledge and Learning*

Another recent change in the area of learning and teaching is due to the emerging concept of man, knowledge and learning, which in the Finnish context most often refers to cognition-based views on learning and to constructivism in particular (cf. e.g., Tella 1996b; Tella & Mononen-Aaltonen 1996). If constructivist principles are implemented in teaching practices, they will certainly have an effect on teachers' and students' roles (cf. e.g., Peretti 1993). This new view on learning and knowledge was strongly reflected in the interviews on quite a few areas. One of the interviewees identified constructivism as the main recent innovation that has produced a lot of other changes in Finland. A majority of the respondents (five out of seven) identified the ungraded school system as one of the latest Finnish educational innovations. We can therefore presume that the modern view of learning has been one of the main stimuli for starting an ungraded school system in Finland. The modern concepts of learning emphasise the students' responsibility for their own learning and their active role in seeking and using information. The role of the teacher changes from one of an information transmitter into that of a tutor guiding the students. One of the best ways to describe this change is to cite an American educationalist who put it briefly, "From a 'sage on the stage' to the 'guide on the side'"(cf. e.g., Tella 1994a).

One of the respondents who identified the ungraded school system as an innovation in Finnish education justified his ideas in the following way:

> "During the last five years we have made a decision to start the ungraded secondary school everywhere in Finland. A new matriculation examination is a part of this new ungraded school system. Some people have argued that the examination is not new but I have to disagree with them. It is new in the sense that it allows this decentralised schooling, the grading has been changed, there are no limits for the subjects you can take in the examination, students can repeat the matriculation exam more freely, etc. Another new thing in this new system is the opportunity for the students to choose subjects for their exam that they have not necessarily studied during the secondary school. For example, a student who has studied advanced mathematics can take a less advanced exam in the matriculation examination. All these features are associated with the ungraded school system." (I 4)

4.2.5.3 *Modern Information and Communication Technologies (MICT)*

Modern information and communication technologies (MICT) were referred to by three of the respondents as recent innovations. They all mentioned the Knowledge Strategy of Education and Research (1995) advocated by the Ministry of Education. The national strategy set the goal of providing every student with versatile basic skills in acquiring, managing and communicating information which will be necessary in an information society. The goals are also set to allow the teachers to acquire new knowledge, skills and competencies in order to be able to use information technology as a tool in their teaching (Developing a Finnish Information Society 1995; Knowledge Strategy of Education and Research 1995).

A respondent who identified the national Knowledge Strategy of Education and Research (1995) advocated by the Ministry of Education as a recent innovation in education reflected on his opinion in the following way:

> "We have several innovations in education in the field of modern information and communication technologies, for example, things related to the Internet and multimedia. However, I find the whole field an innovation, and a concrete example of it is the global 'Finland Towards an Information Society' project. " (I 5)

Another respondent justified his opinion of an educational innovation in Finland as follows:

> "Thinking about teaching and new contents in teaching, I would identify the projects related to new information technology as the leading innovations in Finnish schools. Some of them are traditional but there are some very innovative projects to develop new teaching methods with the help of new information technology." (I 2)

4.2.5.4 *The Concept of Innovation*

The interviewees were first asked to give a definition of and also indicate potential synonyms for an educational innovation. One person gave a definition with two synonyms for the concept of innovation (I 1), two persons identified the concept and named one synonym (I 3, I 7), and four persons were able to define the term with one definition (I 2, I 4, I 5, I 6).

The keywords that most often appeared in the definitions given were **creative** and **new**. Six persons out of seven used the adjective creative or new to describe their idea of the nature of an educational innovation. The definitions given were the following: "a **creative**, **new** solution in educational policy" (I 2), "a **creative** way to renew education" (I 3), "a **creative** solution" (I 7), "creation of a **new** educational culture" (I 1), "a **new** opening" (I 4), "a **new** idea to overcome some problems in education" (I 6).

They also emphasised the process nature of innovation by defining an educational innovation as "a starting power" (I 1) or "an idea that makes things move" (I 5). Considering these interviews and the current national educational strategy we can argue that in Finland the concept of innovation is closer to the concepts of "development" or "experimentation" than the term "reform", which is rather seldom used at present.

4.2.5.5 *The Ways of Identifying an Innovation*

All respondents emphasised the importance of efficient networking and contacts in the process of identifying an educational innovation. The interviewees at the Teachers' Union had wide contacts with other European interest groups, including other teachers' unions. The interviewees at the Ministry of Education emphasised national networks and contacts with people who develop new things. Visits to the schools were also mentioned. Following current research and publications in the field of education was also mentioned as a way to identify an innovation. At the National Board of Education, innovations are also identified with the help of international contacts and other interest groups. They had a national network of schools called "Aquarium", which also made extensive use of email contacts.

4.2.5.6 *The Ways of Spreading and Supporting an Innovation*

In Finland, the Ministry of Education often plans nationwide strategies and provides grants for research and developmental work. Its influence on political decision-making at the national level is therefore decisive. Among other things, the National Board of Education supports experimental work in the field and provides teachers with in-service teacher education courses and modules. This national agency follows the current research on educational innovations and organises seminars on recent trends which both national and international experts are invited to attend.

The Teachers' Union has a certain amount of political influence and it can do a lot in supporting and disseminating an educational innovation in Finland. The Union plans strategies for teachers' in-service courses, while working in close contact with the Ministry of Education and the National Board of Education. The good international contacts with ETUCE, EI and EIE contribute to making Finnish educational innovations better known throughout Europe.

4.2.6 Concluding Thoughts from the Interviews

The respondents were asked to identify a couple of educational innovations in Finland that the national correspondent could observe as a case study and report to the European Observatory. The most common theme identified as an innovation was related to modern information and communication technologies (MICT). Five interviewees out of seven named MICT or media education as the most important innovation to be studied. Two of these persons referred to the national strategy plan advocated by the Ministry of Education and used its motto "Finland Towards an Information Society". One of the main goals of this plan is to have all schools networked by the year 2000. This network would make media and distance education conceivable and open up possibilities for pupils to receive high quality teaching regardless of their geographic location. The national strategy is based on the fact that the telematic infrastructure is exceptionally well developed in Finland, so networking schools via telematics and with the aid of various technological tools is not that far-fetched (Tella 1995a; Tella 1995b; Tella 1996c)[3].

The World Competitiveness Yearbook (1998) demonstrates this quite well. For instance, when different competitiveness input factors are taken into account, the ranking of Finland among other countries is excellent in many respects. The following extracts are based on Where do we stand in the world of New Technology (1998).

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[3] According to statistics accessible in late 1998, it seems that this objective will be achieved and therefore the main focus will probably be geared towards a more pedagogically oriented approach. A new national strategy is being conceptualised at the Ministry of Education in the spring of 1999. (The authors' comment)

- As to basic technological infrastructure (30 criteria combined), Finland ranks third, after the US and Norway, and before Sweden, Denmark and Canada.
- In science and technology, including i.a. research and development expenditures (20 criteria altogether), Finland was sixth, after the US, Japan, Germany, France and Switzerland, outdoing Taiwan, Ireland, Singapore, etc.
- When availability and qualifications of human resources and the quality of life (44 criteria altogether) were calculated, Finland rated third, after Singapore and Denmark, and before Norway, Iceland, Canada and Switzerland.

In many areas, Finland ranks first in the World Competitiveness Yearbook (1998): in new technology, in development and application of technology, cellular mobile telephony, female labour force percentage of total, and connections to the Internet (cf. also http://www.helsinki.fi/~tella/intaccpoints.html).

All respondents, naturally, were aware of Finland's competitive position worldwide, even in 1995–1996. One respondent emphasised the importance of information technology/MICT in teacher education (I 1), another advocated media education in schools (I 3).

On considering the current debate and the information we got through the interviews, it seemed obvious to us that the major innovation to be observed later at the macro level could be the Finnish national strategy to develop this country as an information society. In the light of later developments in this area, this decision of ours proved correct and well justified. We are also of the opinion that our example helped highlight modern technology in the European Observatory, even if technologically oriented case studies were few in its final activities.

Two of the respondents (I 5, I 6) named **Aquarium** as an important educational innovation in Finland. "Aquarium" was a national project less than two years old at the time of the interviews, when it had already included more than 800 subprojects. These subprojects created dozens of school networks that exchanged ideas of developing learning and teaching. The National Board of Education was in charge of the project and set up meetings between people involved in the subprojects. Every subproject had a theme of its own and a domain for development. The project published a journal and used email as a major channel of communication. The project ended officially in late 1998.

"Aquarium" was a good example of an innovation at the meso-level. The subprojects gave us an option to choose one of them as a case study to be observed more closely. The subprojects also represented the school level (the meso-level) and made it possible for us to study teachers and students. The respondents emphasised the unique nature of Aquarium and recommended it as an interesting Finnish case study to be reported to the European Observatory. One of the respondents who identified "Aquarium" as the leading educational innovation in Finland described it as follows:

> "I find the 'Aquarium' project as the most important innovation. The whole project reflects innovative ideas in its effort to build a national network to improve education. The project gathers together people who are interested in this kind of developmental work. The purpose of the project is to give life to those innovations and to help them to spread. Innovations can only spread in interaction with other people." (I 5)

The persons from the Teachers' Union identified several potential innovations, especially in teacher education. The other areas named included preschool education, the Finnish matriculation examination and the ungraded school system. One of the two respondents (I 2) also named MICT as a potential innovation for our study.

4.2.7 Innovations in Teacher Education

The extra question in our questionnaire dealt with teacher education and the qualities and education needed for the future teacher. All respondents answered this question, too. Five of them emphasised the importance of the teacher's personality. According to them, a future teacher is a person who has found his or her own way to teach and masters a broad knowledge base that helps him or her teach different learners. In addition to a mature personality, the teacher needs a strong content-based knowledge of the subjects he or she teaches. Two of the respondents (I 2, I 6) advocated more studies in science and mathematics for the future teachers.

The respondents from the Teachers' Union paid attention to the status of the teachers in society. They wanted to raise the teachers' status as professionals. This emphasis is understandable regarding the role of their organisation in protecting and improving teachers' rights, among other things.

Considering the data analyses, we identified two areas in which to continue our study on educational innovations. The respondents were very much in accord in recommending the Finnish national project "Finland towards an Information Society" as the major Finnish educational innovation to be observed more closely. Choosing this theme allowed us to contribute to the themes "Equality of Opportunities" and "Training of Teaching Personnel" identified in the European Observatory. This theme also helped to exemplify a macro-level educational innovation in Finland.

A promising theme for a case study at the school level was "Aquarium". This network of many subprojects enabled us to choose one of the subprojects to be observed and analysed in more detail. Through this case study we were able to contribute to the same themes as through "Finland Towards an Information Society", but our point of view also made the voices of teachers and pupils heard (the "polyphonic" sound of the researched).

In the following chapters, we will report the main findings of the Finnish case studies presented as national innovations in the European Observatory.

4.3 The Finnish Case Studies

4.3.1 Case Study 1: Analysis of Some Nationwide Strategic Guidelines on Finland's Path to Becoming an Information-Rich Knowledge-Intensive Society

This case study observed the advancement of the national plan to develop Finland into an information and communication society from 1995 to 1997. We chose a pragmatically informed theoretical approach in order to analyse the main national level documents—both printed and on-line—that would relate to our research objectives. In addition, we gave some concrete examples of the national plan implemented at the local level. For the case study, we collected the main documents related to the Finnish national strategy of developing this country into an information society. We limited our review to the documents published between 1995 and 1997, since there was a deadline for reporting back to the European Observatory. We paid special attention to the main recommendations of these publications regarding students and teachers. This emphasis on teacher education allowed us to contribute to the theme "Training of Teaching Personnel" identified by the European Observatory as one of their original five themes (cf. e.g., Activity Report 1995, 4–5). In spite of our theoretical orientation we gathered and highlighted some examples of local and practical implementations of the nationwide strategy in the area of teacher education.

4.3.1.1 *Modern Information and Communication Technologies (MICT) in Education*

In our interviews, MICT were referred to as a recent innovation in education by three of the seven respondents (Tirri & Tella 1997). They all mentioned the national Knowledge Strategy of Education and Research (1995) advocated by the Ministry of Education. This document could then be considered as the most influential report considering our national strategic plans. The document presented some fundamental information society skills for everybody. In our case study we paid special attention to the skills our nation should provide to students and teachers.

4.3.1.2 *Information Society Skills for Students*

The national Knowledge Strategy of Education and Research (1995) of the Ministry of Education set up the goal of providing every student with versatile basic skills in acquiring, managing and communicating information which are necessary in the information society. These goals were operationalised in the national strategy as follows:

- "The comprehensive school must ensure that every pupil learns how to acquire information independently from different sources, how to manage and process information, and how to use information in an analytical and critical manner.
- The task of the comprehensive school is to provide every pupil with basic skills in using information technology. Girls in particular need to be encouraged to use information technology.
- The use of information technology as a learning tool in initial general and vocational education should be increased as specified in the new national criteria for curricula. Information technology should not be taught as a separate subject, it should be a factor that is integrated into the teaching of other subjects.
- The municipalities need to ensure that the schools have the equipment and network facilities necessary for teaching the basic information technology skills. Continuing education should be increased to guarantee that teachers and necessary support staff possess an adequate level of competence.
- In school work, the characteristics and possibilities provided by different media should be studied. The skills required to communicate in different interactive situations should be practised. Special attention needs to be paid to the acquisition of skills in both the pupil's mother tongue and in foreign languages. By increasing co-operation and the joint teaching of languages and other subjects, the possibilities available for learning international interaction and communication should be improved.
- Including mathematics as an obligatory subject in the matriculation examination should be considered.

- The educational authorities should monitor and evaluate the implementation of the new criteria for curricula from the point of view of how well the criteria correspond to the requirements of the information society. The authorities should also determine how well the necessary basic information society skills are taught in schools.
- Vocational institutes and universities need to ensure that the basic skills need by students in the information society develop as technology changes." (Knowledge Strategy of Education and Research 1995, 38–39)

4.3.1.3 Some Examples of Implementation of the Strategy for Students

In 1996, the Finnish government launched a programme that was to help the owners of schools and colleges (i.e., municipality authorities) in connecting schools to the Internet, increasing the number of work stations, encouraging teachers to change their teaching methods by using modern ICT, enhancing teacher education and producing new multimedia teaching materials on CD-ROMs and on the Internet (the World Wide Web). The programme was a big success. As early as the first year almost every school owner volunteered to take part in the programme. The programme was to last three years. The following table shows the situation in Finnish schools in 1996 regarding the number of computers and the ideal set for the year 2000 (Kiesi 1996).

TABLE 4. THE NUMBER OF COMPUTERS IN SCHOOLS AS ESTIMATED BY THE NATIONAL BOARD OF EDUCATION IN 1996 (KIESI 1996).

	Computers	**Schools**	**Computers/ One School**	**Student/ One Computer**	**Ideal in 2000**
Lower stages of comprehensive school and special schools	20,000	4,100	5	19	10
Upper stages of comprehensive school	15,000	620	24	12	8
Upper secondary schools	10,000	460	22	11	6
Vocational schools and colleges	25,000	440	57	7	3-5
Total	**70,000**	**5,620**			

During the time when we were conducting our case studies, Finnish schools and educational institutions were busy building up their own local area networks (LANs). Since Finland has had free competition in the teleservices for many years, schools could choose their teleoperator freely on the basis of the best services offered. The most commonly used services in schools were email, bulletin boards, file transfer protocols (FTP), access to the Internet and access to different telematic services. The availability of these services in schools varied considerably, though. There is no exact information available about what kinds of technical solutions Finnish schools have used to get full connectivity to the Internet. In 1996, more than 1,000 schools and colleges were connected to the Internet with ISDN lines, but at the same time several hundred Finnish schools had only modem connections. These schools had access to the Internet via the Finnish Freenet service. At least 300 schools and colleges had their own web sites in 1996, and the number was increasing almost daily. Fifteen national projects produced materials for schools and students on the Internet (Kiesi 1996), including our second case study focusing on a Freenet virtual school experiment.

4.3.1.4 *Information Society Skills for Teachers*

Goals were also set for the teachers to acquire new knowledge, skills and competencies in order to be able to use information technology as a tool in their teaching (Developing a Finnish Information Society 1995; Knowledge Strategy of Education and Research 1995). In the main national document, the conditions and content of teacher education were recommended to be revised as follows:

- "The form, content and practice of teacher education should be revised. Open and flexible learning should be included in the curricula of teacher education. Practice in using information technology skills should become part of teacher training.
- The continuing education of teachers should be developed and directed particularly towards methods of open and flexible learning and self-directed learning. As a matter of urgency, adequate continuing education for teacher trainers and a sufficiency of appropriate teaching materials must be ensured.
- The university subject departments which organise teacher education, the teacher education units and practice schools need to be equipped with adequate, up-to-date information technology facilities. This will also result in new requirements for their premises." (Knowledge Strategy of Education and Research 1995, 40–41)

4.3.1.5 *Some Examples of Implementation of the Strategy for Teachers*

All Finnish universities have their own centres for continuing or/and in-service education. Most of these centres have been responsible for developing distance learning (DL) programmes in their courses. At the moment, several university faculties and departments (such as the Faculty of Education of the University of Helsinki) also organise in-service teacher education as part of their activities. Distance education (DE) and open and distance learning (ODL) courses in Finland are also often organised as a joint action between universities and adult education institutes. For example, there are some 300 special educational institutions and 90 folk high schools in Finland, and the universities co-operate with most of them. Adult education centres and folk high schools tend to provide open university-level courses for tens of thousands of students per year. Educational telematic services are being offered, too. One of them is the Finnish Freenet, which provides services for pupils, their parents and teachers. Freenet is operated by the Helsinki University of Technology [http:// www.freenet.hut.fi].

Over the past few years, more and more initial teacher education departments have also assumed more responsibility for organising in-service teacher education courses. On the whole, the adult education sector is being reorganised in Finland. For instance, at the University of Helsinki, a new Adult Education Centre was recently established, with the global aim of assuming more responsibility for life-long learning (LLL) at the university level.

It is also worth mentioning that in August 1996 the Department of Teacher Education of the University of Helsinki established a Media Education Centre [http://www.edu.helsinki.fi/media], whose role has been to co-ordinate MICT-based projects and to organise initial and in-service teacher education courses in the field of media education and modern information and communication technologies (MICT). Different modes and tools of distance teaching and learning as well as open and distance learning and flexi-mode teaching are being used. In addition to various modes of multimedia conferencing (such as videoconferencing, audioconferencing and computer conferencing), intensive face-to-face periods are organised (Tella 1996a; Tella 1997; Tella 1998c). The Media Education Centre is also responsible for organising courses intended for in-service teachers who want to update their multimedia and telematic proficiency in the field of media education. On the whole, it is a general trend in Finland to help initial and in-service teacher education systems merge, even though we are witnessing only the first cautious steps.

The local authorities are also responsible for training in-service teachers so that every teacher will get basic knowledge in information and communication technologies. The state subsidises training that lasts five study weeks in universities (1 Finnish study week, 1 'credit' = 1.5 European Credit Transfer System credits, ECTS). This training has been open to 10,000 teachers (of a total 100,000 teachers). In 1996 the first 1,600 teachers were trained, and the system was operational until the end of 1998. In 1999, the training objectives were modified to accommodate more specialised needs of different teacher groups. Training always includes pedagogical skills in using information technology, and it also gives skills in training other teachers at the local level. On the whole, co-operative skills are always emphasised in a communal learning spirit.

4.3.2 Case Study 2: On Creating a Virtual School-Based Learning Environment for the Finnish Schools

The second Finnish case study was concerned with an observation study of a school-level innovation called "Aquarium". Aquarium was a school network with a lot of subprojects, which allowed us to choose one of the subprojects to be observed and analysed in more detail. For our empirical study we chose a Virtual School Project that has been developed since 1995 by Principal **Martti Hellström** at a primary school in Espoo, a neighbouring city of Helsinki. The official start of this project took place in November 1996 when all interested parties met at a startup seminar. At that seminar the aims and goals of the project were then discussed and a schedule for the whole project was created. The main goal of the project was to create a virtual school-based learning environment for the Finnish schools.

The traditional view of school as the central place of learning has lost much of its prior validity. An increased utilisation of international communications networks has created a situation where learning increasingly takes place outside the school building. According to one research finding, a North American youngster spends, rather surprisingly, some 91% of his or her first 18 years *outside of school* (America 2000; Sawyer 1992). This development has been accelerated by an easy access to the telecommunications networks and to the Internet in particular. In our case study, we referred to this new educational potential with the concept of a virtual school.

The notion of a virtual school can be approached through several gateways. We will briefly present two of them:

- The Virtual School as an information exchange system, focusing on asynchronous communication (e.g., Paulsen 1987; Blystone 1989; Tella 1992b; Tella 1995b; Tella 1997; Tella, Kynäslahti & Husu 1998)
- The Virtual School (or Class) as an element of distance education or school-based telelearning facilitated especially by a synchronous use of telecommunications (e.g., Tiffin & Rajasingham 1995; Stevens 1997).

In addition to virtual school, several other terms are used in the literature to refer to a similar learning environment, e.g., "virtual classroom", "virtual class", "electronic education", "electronic classroom (ECR)", "electronic college", "electronic campus", "on-line education", "computer-assisted teleconferencing (CAT)", "virtual computer" (e.g. Harasim 1987, 118; Harasim 1990, xiii; Henri 1992; Sawyer 1992; Hernes & Haugen 1993). Paquette, Bergeron & Bourdeau (1993, 642) extend the concept of a virtual classroom to cover tools for facilitating co-operative work, distance use of multimedia documents, and a knowledge-based information system intended for pupils.

Based on the concept of a networking learning environment, the virtual school consciously utilises modern information and communication technologies (MICT) and computer-mediated human communication (CMHC). In this sense, the virtual school is an information system able to deal with all the academic tasks of school. In its extreme ontological implementation, a virtual school does not exist as a concrete building with classrooms and offices. Instead, it can be a logical extension of the use of computers in the teaching–learning process and in the teacher–learner interaction. In this light, a virtual school approaches the ideas of Illich (1970/1996) about a school without a building but still firmly connected to society. If we regard a virtual school as a symbiotic ("virtual") extension of an ordinary school, part of its activities may be moved to a virtual school and carried out there with the aid of modern information and communication technologies.

It is interesting to notice that especially in the United States, the notion of a virtual school seems to have lost its generic emergence (or, perhaps, its innovative character); rather, it is more and more often taken as a general educational concept, without any reference to the birth of this concept. For instance, Porter (1997) discusses the virtual school without ever mentioning any names such as Paulsen, Blystone, Harasim or Tiffin & Rajasingham that have been considered pioneers in this area of research.

At the same time, several Finnish researchers (e.g., Husu 1997; Kynäslahti 1997; Sariola 1997; Kynäslahti 1998; Nummi, Rönkä & Sariola 1998) have continued the work initiated by Tella (1992b; 1995b) by analysing the intrinsic elements of a virtual school. Husu (1997, 63), for instance, defines a virtual class as an entity formed by two different interactional environments, those of direct and mediated interaction. Sariola (1997) discusses the problems related to teaching at a distance via videoconferencing. Kynäslahti (1998) argues that virtual school activities can also take place in a traditional school:

> "'School'... is the interaction which takes place in real time between the participants (in the spirit of co-operative learning...), completed with pupils' and teacher's actions in various places simultaneously. Here we do not deal with 'going outside of a school' and 'coming back to a school'; rather, people in different places are carrying out their things simultaneously. The border between school as a physical place and environment becomes blurred. The ordinary physical school is only a part of greater complex." (Kynäslahti 1998)

Through the LIVE Project (Learning in a Virtual School Environment), Nummi, Rönkä & Sariola (1998) illustrate vividly what sort of measures schools can take in order to integrate virtual school activities into their action.

In short, a virtual school and an ordinary school no longer form a dichotomy; rather, they complement each other. The term "virtual" is closely related to virtuality, telematics, and telecommunications. It is only apposite to underscore the new potential brought about by latest technological developments. Tella (1998b) has made an interesting addition to the discussion of a virtual school by suggesting a reference to Agres, Edberg & Igbaria's argument (1998, 72) that a virtual school, as part of a virtual society, represents a culture that is based on the logical rather than the physical. This argument, however, will not be expanded in this context.

4.3.2.1 Towards an Implementation of a Virtual School

Freenet Finland

The virtual school experiment was carried out on a technical platform called Freenet Finland (a BBS or bulletin board system, freely accessible to all Finnish schools). Freenet Finland, initiated in October 1993, was an Internet-based network for Finnish primary and secondary schools and for vocational institutes. During our observation period, it was mainly funded by the Finnish National Board of Education but it also got some resources from a number of Finnish business enterprises. Freenet Finland was maintained by the Lifelong Learning Institute Dipoli at the Helsinki University of Technology in Espoo [http://www.dipoli.hut.fi/eng]. As part of its teledemocracy, Freenet Finland offered free Internet services (e.g., email, bulletin board, news and later the WWW) to every student, teacher, parent and Freenet partner. The latest statistics we have seen indicated that there were more than 70,000 people on it. In our case study, Freenet Finland was part of the technical and human infrastructure on which the actual Virtual School Project was built. Our intention was not and is not to analyse the full capacity of Freenet Finland in this publication; rather, our analysis is focused on the virtual school implementation only.

Pedagogical Aims of the Virtual School Project

The Virtual School Project set eight main pedagogical aims:

- to increase the opportunities of schools, classes, families and pupils to find co-operative projects all over the Europe
- to promote learning projects to be used as part of compulsory education
- to promote the pedagogy of new technology and the new conceptions of learning
- to give managing support (timing, tutoring, mentoring, etc.) to these projects
- to help put the products of these projects on the web sites
- to create standards for certification of these projects
- to help evaluate these projects
- to create an open forum (for universities, families, schools, individuals) regarding teaching and learning.

4.3.2.2 Research Methodology of the Second Case Study

Aims of the Case Study

We observed the development of the Virtual School Project from November 1996 until May 1997. Prior to this period of observation, we had approached Mr **Martti Hellström**, leader of the Virtual School Project in the spring of 1996, with the intention of informing him of our idea of selecting his project as one of the case studies to be presented at one of the seminars of the European Observatory. Our primary aim was to observe how the goals set at the beginning of the project would be achieved during the first six months. We adopted an ethnographic study design (cf. e.g., Goetz & LeCompte 1984) and used the following data-gathering techniques: (i) participation in the seminars of the project; (ii) an analysis of the main topics presented on the project's mailing list; (iii) a structured questionnaire sent via email to all the participants of the project; (iv) an analysis of the subprojects; (v) a school visit, and (vi) an interview of one of the key respondents, the leader of the Virtual School Project.

In the following, we will discuss the general goals and schedules set at the initial seminar of the project (November 1996), the achievement of the goals as evaluated at the closing seminar (May 1997), the main ideas presented on the mailing list and the findings of the structured questionnaire exploring the special interests of each party involved. A special emphasis was put on the question of equal opportunities, as it was one of the crucial issues discussed in the European Observatory. With the use of methodological triangulation we aimed at a rich and valid picture of the progress of the Virtual School Project.

The Initial Seminar

The Virtual School Project of Freenet Finland was officially launched at a seminar in Espoo in November 1996. All the schools and other partners who had shown interest in the project had been invited to this seminar. Principal Martti Hellström explained the framework of the project and the responsibilities of the parties involved. All participants were given a chance to tell about their ideas and plans to contribute to the Virtual School Project. Eleven subprojects were presented at this seminar (Appendix 2). Everybody involved was encouraged to discuss their ideas and plans via the common mailing list created for the project.

Methodologically, it is of interest to notice that even if the main focus was to be on a virtual school concept, yet face-to-face (or human-to-human) communication was seen as indispensable to the launching of the joint project. The participants formed a heterogeneous group of people, schools, museums and other institutions, with a common goal. At the same time, the project highlighted one of the potential assets of a virtual school: doing away with hierarchies and barriers usually caused by institutional or other boundaries.

The Main Topics Discussed via the Virtual School Mailing List

All participants of the Virtual School Project shared a Freenet Finland financed mailing list, which we observed from November 15, 1996, until February 10, 1997. The time schedule to be observed was chosen pragmatically to illustrate the initial stages of the project up to mid-February 1997, when we expected the discussion to slow down because of the sports holiday season in the schools. We decided to analyse the mailing list on the basis of the main ideas presented, i.e., ideationally rather than quantitatively (as to different analysis methods, cf. e.g., Tella 1994b, 52–62).

Via the list, the partners shared diverse information about literature, seminars, references to interesting WWW pages and different grant options. Clearly, one aim was to encourage each other to develop joint interests in the project while working at the same time on one's own subprojects. In our analysis, this development reflected the polarity between locality and globality. Local subprojects and solutions were regarded as necessary but they were also expected to have an impact on the global structure of the project.

The initial discussions started in November 1996 were continued through the list with ample reflection on how to structure future activities. Notes taken by different people during the initial seminar were exchanged and the various subprojects were introduced more properly. Disappointed and somewhat frustrated expressions of not getting a grant from the Ministry of Education in the autumn of 1996 dominated the discussion for a while, although developing future plans gradually gained wider currency.

Two families living abroad (Spain and England) introduced themselves to the list. The first family, with three school children, hoped to receive some help for their children, who were being raised at home. The second family asked for materials in Finnish and in mathematics to help their children keep up with their mother tongue. They reported that there were several Finnish families in England who were interested in the Virtual School Project. One of the individual partner's projects was related to developing cooperation between virtual school and home. We believe that these examples demonstrate the transnational and cross-hierarchical potential of a virtual school, since people can then get connected regardless of their actual place of residence or their prior status towards the school.

The elementary school partner from Lapland actively shared many ideas about his own subproject and even invited all the interested partners to visit his school. He also planned to organise a camp at his school the following summer with the virtual school as the leading theme. We felt tempted to see this partner's activity partly as a technologically facilitated extension of his own *Lebensraum*. If we take the mailing list—and the whole Virtual School Project—as a modern example of Habermas' (1962/1989) idea of the public sphere as a realm where public debate helps to shape participatory democracy, then this individual from Lapland extended his own habitat to cover some of the joint public sphere while putting it at the disposal of everybody else. Finnish Lapland is a very sparsely populated territory, but the virtual school gave ample opportunity to have more contacts with colleagues and experts elsewhere. On the whole, virtual school-mediated communication can be independent of distance, time and location (cf. e.g., Giddens 1991, 20; Negroponte 1995; Gell & Cochrane 1996; Tella & Mononen-Aaltonen 1998, 94), though we as human beings are always physically tied to time and place.

By mid-January 1997, four partners out of 11 had mailed their subproject descriptions to the list (Appendix 2, Nos 1, 5, 7 and 10). Not much discussion followed, though.

New grant applications continued to be discussed, together with an exchange of addresses of potential new partners. A special interest was shown in one EU-based project, which dominated the discussion from January 1997 until the end of our observation period in mid-February 1997. A draft application form of this project was mailed to the list in early February 1997. Everybody was encouraged to comment on the proposal. A suggested partner from England soon responded and informed the list of another partner from Ireland who also joined the consortium. Other European requests for co-operation appeared. For instance, a French applicant was looking for Scandinavian partners for his European network for citizens. One more applicant from the UK was interested in developing a virtual public library.

In our final analysis, the mailing list turned out to be a beneficial forum of information exchange and retrieval. It also served as a new type of information repository accessible to all participants; it helped to create, establish and maintain contacts between those who shared common interests and had a specific goal to achieve. In this sense, the mailing list exemplified the two layers of reality: first, the social network maintained between individual human beings, whether professional educationalists or representatives of other walks of life; and second, the telematic network based on the technological infrastructure.

A Structured Questionnaire

As part of our data-gathering strategy, we sent a questionnaire (Appendix 3) to the discussion list in late ,anuary 1997 and encouraged all the partners involved in the Virtual School Project to answer by February 10, 1997. Six partners answered before the deadline, after three reminder emails from us. Some of the individuals involved in the Virtual School Project emailed us regretting that they could not answer the questions because they did not work in any school or institute at the moment. In the following, we will analyse the answers given by the six partners (Appendix 4).

Analysis of the Subprojects of the Partners

Four partners out of the six were primary school teachers responsible for developing materials to be used in the virtual school. Three of these schools were located in Northern Finland and one in Espoo, close to Helsinki. The topics of the primary schools in Northern Finland concentrated on environmental studies. Two of these schools were expected to create an adventure on the Internet for the virtual school students to visit different parts of Lapland. During this virtual journey students would study natural sciences and environmental issues and get feedback from teachers via email. A primary school teacher from Oulu was to create virtual flora for the virtual school students.

A primary school from Espoo had been involved in designing a virtual library course in co-operation with a local library. The aim was to teach children knowledge-acquiring skills and to increase the love of literature. This subproject had produced some material earlier and aimed at improving it while creating some new contents as well. The students of this particular primary school were using the finished material as part of their optional email course.

In addition to the four schools, two other institutes answered the questionnaire. The Espoo Museum planned to make a learning package about Espoo's prehistory. This package was intended for students of all ages interested in their city's prehistory. The other project, called The School Abroad, was intended for Finnish children who lived abroad but wanted to study subjects included in the Finnish comprehensive school curriculum. The crucial subject for these students was usually the Finnish language. The School Abroad was responsible for creating Finnish-language materials for Grade 7 to be used in the virtual school. The students would use the same textbooks as in ordinary Finnish schools but would have an email contact with the virtual school teacher and the other students.

The subprojects illustrated two features related to the virtual school potential. First, ordinary school subjects could be studied at a distance via telecommunications. Modern technology, such as email, the WWW, and multimedia conferencing in general, enabled communication, teaching and learning with sufficient ease irrespective of the restrictions connected to conventional school-going practices. Second, the importance of keeping in touch with one's teachers or classmates via email cannot be overestimated. In our analysis, this is what Boyd (1987) referred to as affiliative viewpoints when speaking about the new educational opportunities through computer-mediated communications systems. These systems provide learners with new opportunities for peer tutoring and for establishing long-term affiliations between students and their school and teachers, and between students themselves. Besides, the physical flexibility (Boyd 1987) offered by computer-mediated communications systems, such as used in the present Virtual School Project, gives new opportunities to students to study in more convenient places and at more convenient times.

Equality of Opportunities Regarding Gender and Computer Inequity

This question dealt with the equality of opportunities in the teaching of information technology (IT). The problem mainly concerned the four schools, as the other two institutes did not have information technology as a subject in their curriculum.

All the four teachers from the primary schools acknowledged the role of computers as an everyday learning tool in their schools. In their opinion, the use of computers was one of the basic skills a school should give to the students. In two of the four schools, optional courses in IT were organised, but otherwise the use of computers in teaching depended on the individual teachers. One teacher reported that in their school parents also received instruction in using computers. In this school all teachers taught IT. Besides, they had a teacher specialising in technical supervision. This school could be seen as highly advanced in using modern information and communication technologies in spite of its isolated location. Also, the equality of opportunities in using computers was different from the other schools. IT was taught by equal numbers of female and male teachers, which, according to the teacher who replied to our questionnaire, resulted in girls participating more actively than boys in the teaching of how to use email and how to draw with a computer.

In the three other schools more than thirty percent of the teachers used computers in their teaching in one way or another. Two of these schools had a teacher specialised in educational computing. Two of the primary school teachers (both females) reported that male teachers used to dominate the use of computers in their schools. In the two other schools, teaching of IT was evenly divided between male and female teachers. In three of the primary schools all students were given basic training in using computers. However, in all these schools boys showed more interest in computers and took more optional courses in IT than did girls.

The equality of opportunities and computer inequity have long been regarded as central problems when modern information and communication technologies are discussed in the school context (cf. e.g., Tella 1992a). The sample of the Virtual School Project, though very limited in quantity, showed, however, that this question still calls for further consideration, and reconsideration concerning the didactic methods teachers should adopt in order to decrease any unintended inequality or inequity as far as educational computing is concerned.

Future Needs of the Virtual School Participants

All the partners reported that they needed more useful technical solutions. The Espoo Museum reported that they used the City of Espoo server as their technical solution to access the Internet. The School Abroad had a couple of computers with telephone lines and modems and one laser printer in their office. They lacked Internet connections for the teachers working in their homes to supervise students studying abroad. One of the primary schools identified itself as a Macintosh school with a few Windows-based personal computers. The other schools used different kinds of Windows-based computers. All schools had at least one modem connection to the Internet. One of the schools was very well equipped with fixed-line connections and with about twenty computers. In general, the schools lacked computers, full connectivity to the Internet, printers and even classrooms connected to the Internet.

The staff of the two institutes needed in-service education to learn to create materials for their WWW pages. They lacked technical skills and needed outside help in uploading their materials to the server. The teacher from The School Abroad attended an in-service training course to learn these skills. The primary schools asked for in-service training for everybody involved in the virtual school project, technical training, concrete advice for teaching, discussion and an exchange of ideas, meetings and seminars with other virtual school people, and sensitivity training in attitudes for all teachers in using IT. Research work on the virtual school concept was also welcomed.

Future Visions of the Virtual School

All the partners saw the virtual school as a school for the future. In their visions, the use of IT in education was going to increase and the virtual school was going to become one of the alternatives to attending school. The virtual school was regarded as an interesting addition to the usual schoolwork and as an option for students living abroad and in isolated areas. Small schools would profit from the wider selection of courses available to everybody through the virtual school. Computers were seen more and more as tools for learning and differentiating education. One of the teachers reminded us of the pedagogical and psychological needs of children that should be kept in mind in the virtual school as well.

All the partners identified the school as responsible for providing the basic skills in using IT. They justified this argument by referring to the equality of opportunities. Homes differ in their opportunity to provide children with computers, computer-based education and network-based learning (NBL). Therefore the school should guarantee the basic teaching and equipment to every child. The parents are responsible for supervising their children in their use of computers. Schools should work in close connection with parents and support the homes in the upbringing of children. Schools could also provide IT outside the school hours and provide parents with learning opportunities.

The virtual school was seen as a way for teachers to keep up with the latest trends in education. However, comments were also made about the extra work the teachers have to do without any extra pay. Developing a new type of school and creating learning materials usually require huge investments. The partners were willing to invest the extra work required but they wished to receive some support in a financial form to be able to continue their innovative work.

A School Visit

As part of our data gathering methods, we visited one of the primary schools involved in the project, Aurora School in the City of Espoo. This was the school of Martti Hellström, Head of the Virtual School Project. On the same day, April 25, 1997, a group of principals from other European countries happened to visit Aurora School. The interview with Mr Hellström was carried out during this visit.

Aurora School had about 300 pupils and 40 teachers. The school had well-organised bulletin boards rich with the pupils' own work. Once the visitors had settled down, Mr Hellström introduced the school and emphasised the freedom of choice for both teachers and pupils. The teachers were given a lot of freedom to make educational decisions of their own. The school used a flexible timetable, allowing more flexibility in the planning of the lessons. The basic skills were emphasised, with the goal of providing every pupil skills in mathematics, language and in the use of computers. On two mornings of the week, extra teaching was provided for those pupils who wanted to get more challenges and to advance faster in their studies. This extra teaching was voluntary and included computer studies as well. The school had two qualified special education teachers who worked with children with learning problems. However, the teacher whose personality matched the pupil's personality was often considered the one to give the extra teaching needed in the problematic learning areas. The school encouraged the pupils' artistic expression by providing opportunities for drama and music. At that time, Aurora School had ten rock-and-roll bands which practised with great enthusiasm.

After the principal's lecture, all visitors observed some classes. The pupils showed us around the school and answered our questions in English. The tour was followed by a musical presentation performed by two of the teachers with their pupils. The day ended with a discussion of the visitors' observations. The visitors hastened to say that the pupils had been most active, responsible and cooperative during the day.

An Interview with the Head of the Virtual School Project

In a personal interview with Mr Hellström, Head of the Virtual School Project, three specific questions were asked:

- What had been achieved in the Virtual School Project during the first six months?

- What were the goals that had not been met during this period? Why had they not been met?
- What were the future visions of the Virtual School Project?

According to Mr Hellström, the main achievement had been the actual establishment of the idea of and the framework for the virtual school. An innovation always takes time to get enough attention from the general public, Hellström argued. He viewed himself and his virtual school project as the first to have shed light on this new idea of a different kind of school without time and space[4]. In addition to the idea established, he found that the partners of the virtual school had demonstrated some good examples of materials and contents that could then be used in the virtual school.

Many goals that were set at the starting seminar had not been met. For example, the materials had not been finished within the planned period of time. Mr Hellström identified the lack of financial support as the main reason for not having met the planned goals. His virtual school project would have needed money to train the teachers and partners to produce materials for the WWW pages. The partners lacked the necessary skills to produce on-line material, and they would have needed in-service training to be able to do so. The delay in the planned schedule discouraged the partners and later manifested itself in little if any activity within the discussion list.

The future of the Virtual School Project depended very much on the available resources. Mr Hellström considered adequate financial support necessary for the future plans. The first six-month period of the virtual school had been a pilot phase to establish the innovation. If the financial resources had been found, Mr Hellström thought the project would have had a future. In any case, the project was to continue in his own school with 30 voluntary pupils who had shown a special interest in the idea of a virtual school. This group of pupils was going to test the materials created for the virtual study. Mr Hellström advocated the basic skills in the use of computers for all the pupils of the school, but the extra study was going to be on a voluntary basis. He intended to encourage all the pupils of the school to study the issues they would be personally interested in. He was not worried about the equality of opportunities regarding gender in computer studies, though boys had showed more interest in computers than had girls. He was confident in that the girls would also acquire the basic skills in using computers in his school. If the girls did not want to study more voluntarily, then they should have this right. According to Mr Hellström, the freedom of a person to choose had priority over the advocacy of computer studies for girls.

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[4] Technically speaking, this was not quite true, as Professor Tella had conducted a relatively large virtual school experiment in the Helsinki Metropolitan Area, including the City of Espoo, in 1992–1994 (e.g., Tella 1994b; Tella 1994c; Investing in Knowledge 1997). Aurora School had not taken part in this Utopia Project, though.

The Closing Seminar and Some Outcomes of the Virtual School Project

A closing seminar for the first year of the project was arranged on May 16, 1997. At that seminar the partners co-evaluated the achievements of the first year. Only two subprojects (1 and 7) had met the goals and completed materials to be used in the virtual school. Subproject 8 had almost met the goals in producing the materials for studying Finnish abroad. Subproject 5 had all the ideas for the Lapland adventure ready but they had not had time to produce the material for the net. Subproject 6 had also overestimated their resources and planned too massive a project.

In Subproject 10, materials had been produced for the WWW pages. However, interaction on those pages had not been very successful despite some positive feedback. For example, the Minister of Education had expressed his support for the idea of developing co-operation between homes and the virtual school. Subproject 4 changed their plans to produce materials for science studies. Instead, they developed a network atelier in which pupils could study different subjects in interaction with the teacher.

When comparing the outcomes of the project to the aims set at the beginning of the project, we could conclude, albeit cautiously, that aims 1, 2, 8 and perhaps aims 3, 5 and 7 were met—at least partially—as far as the Virtual School Project was concerned. As no criteria were determined or discussed during the Virtual School Project's first six months of action, we find it difficult to make more precise conclusions.

To sum up, the first year of the project showed that educationally valuable outcomes could be achieved and shared between the partners. However, not everything was achieved nor any recommendations formulated by the partners. We feel this was partly because of the lack of necessary financial resources and partly because of an insufficient number of computers, printers and Internet access points in the schools and institutions of the project. This was naturally alarming, as so many international comparisons at that time put Finland among the very best with regard to the technological infrastructure in this country. The level of equipment in schools, especially at the primary school level, was much lower, however. Perhaps the project could not take into account all the constraints and realities that many of the teachers and other professionals were facing at their work places. It also turned out that the project partners did not know enough about earlier Virtual School experiments carried out in Finland, even in Espoo a few years prior to the takeoff of this project (e.g., Husu et al. 1994; Tella 1994b; 1994c; 1995b).

One more reason for a partial failure in meeting the goals set at the beginning of the Virtual School Project probably was that the partners were not yet adequately accustomed to collaborative working methods in a computer-supported communication environment. During the second year of the project, everything would probably have gone much more smoothly, especially if there had been more than one participant per institute.

Where to Go from Here?

In the second case study, we have presented a Finnish experiment focusing on the virtual school concept. We have also analysed some of the outcomes and problems of the project. Now it is time to connect these findings to some prior knowledge and experience gained through educational applications of modern information and communication technologies. The aim is to summarise some of the prior experience in order to give the Virtual School Project some food for thought.

What have we learnt from prior experience as far as educational computing is concerned (cf. e.g., Tella 1998a)? First of all, not every country should repeat the mistakes others have already made. Computer laboratories in schools do not fully serve all teachers and all school subjects. In a virtual school type of activity, it would be much better to have computers available at many sites in the school building. When teachers are being trained, at least two teachers per school should be chosen. Head teachers (principals) should have the right to be trained together with their teachers. Obviously, technical training is not enough; rather, adequate attention should be paid to pedagogical perspectives. Technically, modem-based access to the Internet is no longer an up-to-date solution; rather, a fixed ISDN line (or preferably several) should be provided for a school to have full connectivity to the Internet. All teachers and all students should have access to all the services of the Internet at any time. IT (information technology) should be changed to ICT (information and communication technology) or even to MICT (modern information and communication technologies) and integrated into the teaching of all school subjects. The role of the teacher should be reconsidered, for instance, in the light of constructivism, leading perhaps to the shift in focus from "the 'sage on the stage' to the 'guide on the side'". In a wider perspective, the principles of educational uses of MICT should be integrated to all initial and in-service teacher education programmes. More professional development programmes to be carried out at the workplaces are also needed. On the whole, a good theoretical basis is needed for teachers to understand how these new tools and services can be fully utilised in an educational context.

In technology, there is no use hurrying up if one does not quite know in which direction to run; rather, it is better to sit down and listen to other people's experiences, learn from them, and then make the final decision by "listening to one's heart", i.e., by bearing in mind that the context for human development is always a culture, never an isolated technology. In this respect, a Virtual School Project, in the spirit of the one presented in this article, can do a good deed to all Finnish schools. If this is done, then we can really argue that the society of tomorrow will be an information-rich and knowledge-intensive society that is bound to provide future learners and future teachers with equal opportunities.

The Future is Now

The Virtual School Project clearly showed that what counts is the collaboration between the schools, teachers and students. Networking of schools calls for collaboration that is likely to lead to organisational integration in which it is difficult to distinguish any geographical, educational or administrative boundaries between schools. In this respect, differences between a "physical" ("traditional, conventional") school and a virtual school (based on the logical rather than the physical) are likely to disappear. They will all be parallel representations of a school worth attending, a school that makes full use of modern technology while providing all children with (technological) wings and (cultural) roots. Perhaps, then, more people would be convinced of the potential of this new format of school, resulting in more elaborately facilitated (networked) lifelong learning opportunities for all groups of learners, first for those catered for by the "traditional" school but also for those who do not have direct access to conventional education opportunities.

At the school level, the introduction of modern information and communications technologies is facilitated by the fact that a virtual school can operate as part of the existing school system. Students are more and more able to attend a virtual school telematically from their homes, but as stated above, a virtual school can also be used within the walls of an actual school building or as an extension of the classroom. Working in a virtual school environment apparently involves many technical difficulties that should be distinguished from pedagogical problems. From the viewpoint of the learner, experiences from a meaningful learning environment are related to better comprehension (a principle of constructivism). A virtual school learning environment is open—and challenging—in the sense that learners can and to some extent also must construct their own meaningful learning structures, or co-construct them in interaction with peers and teachers, leading to socially co-constructed appropriation of knowledge (cf. also Tella & Mononen-Aaltonen 1998, 62).

New sociologically interesting phenomena, such as decentralisation, integration, and fragmentation, will take place when schools become networked (cf. Tella & Kynäslahti 1997). A virtual school implies school networks that are likely to become a constitutive element in the development of schooling in the Finnish information and communication society. We are convinced that networking is one of the ways that help facilitate the "uneasy alliance" between technology, culture and communication.

4.4 Some European Trends

When comparing the Finnish innovations to those of some other member countries of the European Union, we can see quite a few similarities with Ireland, Germany and the other Scandinavian countries. The concept of innovation is seen as developmental work or as a new process in education. In countries like Italy and Spain, the concept of innovation is often taken as a synonym for reform.

The educational policies in each European country partly create favourable or unfavourable conditions for possible educational innovations. In each country we can identify some political megatrends that define the context of innovations. The national policy can support or prevent the spreading of an innovation. The questions of power and finances are closely related to the national policy of the country. In the following sections, these topics will be briefly discussed in order to give some examples of the policies affecting educational innovations.

4.4.1 The Power Structure of Decision-Making

The structures of educational power are reflected in the decision-making. Decentralisation, for instance, implies that decision-making, concerning both the organisation and the content of education, is transferred to the local educational agents. In many countries, for example Finland and Denmark, decentralisation has brought about major curricular changes. The municipalities and teachers in schools have the power to design and to redesign their own curricula as well as to plan and implement their teaching. In many European countries, these changes in power structures have taken place within the last ten years or so. However, centralisation policies in some of the EU countries, for example Ireland and Portugal, deposit most of the power in the hands of national authorities and governance bodies in establishing and maintaining rules and regulations. This might, though not necessarily, lead to a slower or less active way of reacting to 'bottom up' innovations that are more likely to occur in countries with decentralised educational policies.

4.4.2 The National Policy and Educational Innovations

In most of the case studies of the European Observatory, the initiative of innovation comes from the bottom up. In these cases, the teachers and other local actors might present a new idea to overcome some problems in education. Only a few case studies, for example those of Finland and Greece, can be identified as "top-down" innovations. In these two cases, the initiative for innovation has originated from the central authorities. Some case studies do not fit in the "top down/bottom up" dichotomy, because they have had both local actors and authorities involved from the very beginning. These innovations can be described as interactive in nature.

Most of the educational innovations occur in schools. However, there are some case studies, for example Italy and Ireland, which exemplify contexts outside of schools. In these cases, co-operation and a mutual ideology behind the innovation have made it possible for the innovation to flourish.

Educational innovations are not necessarily followed by automatic financial support—far from that, in fact. In all 'bottom up' innovations the implementation remains with the municipalities or with the schools or teachers themselves. The teachers involved in the innovative work are not usually paid by the state for extra work. The role of the initiators in the 'bottom up' innovations must be very active. For example, in the case of Ireland, the innovations can be seen as opposed to the national educational system. In cases like these, the ongoing difficulty of obtaining financial means makes the initiators do most of the work on a voluntary basis.

Some of the innovations, for example the French cases, have had an impact on a political level. These innovations have attracted attention and gained the support of local, regional or national authorities. However, it is very difficult to transfer educational innovations in Europe from one country to another without paying enough attention to the national educational system. Those innovations that have been established in constant interaction between the authorities and the local actors usually have the best potential for growth. On the other hand, these kinds of innovations usually also have a more easily transferable character.

5. DISCUSSION

In this chapter, a few afterthoughts will be presented. The chapter is divided into two subchapters. The first will cover general viewpoints on the activities of the Observatory and also comment on some aspects of the present publication. The second part will deal with the Finnish experiments in light of the whole Observatory.

5.1 The Observatory Revisited

The Observatory put together people from different countries who shared a number of professional research interests but were still very divergent. At best, one could argue that **the network** created in this way (cf. p. 10) was based on an *ad hoc* type of rhizomatic network. Therefore it was also understandable, as Vaniscotte (1998, 49) points out, that **no systematic comparisons** could be made based on the data gathered from different countries. This was emphasised from the very beginning, in fact. For instance, Cros (s.a., 6) wrote that "the Observatory does not follow [the] idea of exhaustiveness, but tends to find relevant queries and knowledge on innovation together with the way the European educational systems are transformed".

Provided these initial assumptions are explicitly taken into account, we firmly believe that the activity of the Observatory was far from any "wild-goose chase". On the contrary, we are of the opinion that some highly interesting observations and research findings were reached, even if they cannot be generalised to cover any populations in a truly quantitative manner. Our **methodological approach**, a process of deconstruction/reconstruction of the texts, ideas, and intentions of the members of the Observatory, gave us an opportunity to analyse the different opinions and views as expressed and reported by the National Correspondents.

To some extent, this analysis and the subsequent synthesis constructed on it, were jeopardised by the uneven quality of the original written sources. The first English-language documents, in particular, were rather approximate translations of precise original French documents. This is one reason why we have included in the present publication extracts from the French-language final report. Another reason is that in this way we hope we will give a more authentic image of the style and richness of the original French documents, a more "polyphonic" sound, reflecting, hopefully, the original voices and tones. Some of our translations in this report are, admittedly, simplifications of the originals, but we have attempted to transmit the original idea as closely as possible.

One more issue should be considered, namely the fact that **not all countries are equally well represented** in the reports of the Observatory—nor in this publication. This problem was brought up in Bologna, for instance (Murphy 1997): "It was felt that some countries were quoted more often than others. For example, some countries which might not seem like pacemakers in some areas may be overlooked. ... In order to improve the balance between the common trends and the local idiosyncracies, which should be retained, it was suggested that reporters should endeavour to quote each country's cases in each of the major themes."

On the other hand, it is difficult to see how else **the process of networking** could have been organised, providing the limited time and resources available at the outset of the project. On the more positive side, one could contend that most of the nodes of the net represented persons whom the co-ordinators of the Observatory knew in advance, which, to some extent at least, guaranteed the functionality of the net. In addition, most of the participants were social science or educational experts accustomed to working in a European context, which was likely to contribute positively to the implementation of the action plan of the Observatory.

When assessing the functionality of the Observatory after four years' of implementation, one can think of the various characteristics represented in **the network metaphor** presented earlier in this report (cf. p. 10). Admittedly, the Observatory made up an international scientific network, with a certain number of cross-disciplinary areas of interest. It was also an international network of researchers, administrators and educators, though focusing on a European context. At its best, the Observatory served as a bridge between people with different cultural and scientific backgrounds. On most occasions, a conscious effort to co-operate was felt and expressed by the members of the consortium.

But not everything went smoothly and some problems accumulated over the years, despite initiatives to do away with these problems. What caused most problems was, in our interpretation, the hitches between **the French-speaking world and the English-speaking world**. The Observatory was dominantly French-speaking and understandably even more, as the main initiators and co-ordinators of the project were French experts from the Ministry or from the Paris-based INRP. Occasionally, and during a couple of joint meetings, simultaneous interpretation services were available, but despite these efforts, many English-speaking members complained—silently or aloud—that the pilot group of the project did not do enough to guarantee for everybody full comprehension of the major issues.

Many of the documents were first only in French. Some were translated into English at all, and some translations left a lot to be desired. This state of affairs was bound to lead to the fact that towards the end of the project, there were fewer and fewer English speakers among the participants in the joint meetings. From the point of view of the Finnish members, the situation was not critical. Professor Tella was fluent in both English and French, and he participated in sessions in both languages, though mainly contributed in English. Docent Tirri was fluent in English and understood some French, especially in writing. On a few occasions, German, Italian and Spanish were used, but the major decisions were always made in French. Though some of the French participants spoke excellent English, not all were fluent in this language, which led to several misunderstandings over the years. A few members of the Observatory did not understand or speak French, though most of them did. Some, on the other hand, did not speak English at all.

Another interesting aspect is **the cultural scientific background**. Françoise Cros (s.a., 4) argues in the Scientific Report (1996–1997) that most members of the Observatory had social science as their background and worked in education and training. This did not help to balance the differences in the ways different people were accustomed to writing scientific reports. This was partly alleviated by the Observatory agreeing on common criteria when conducting interviews or compiling research data for publication. However, what remained and what added to the diversity and heterogeneity of the reports was the fact that there are different traditions in Europe as far as report writing is concerned. Without analysing the situation at length, it may suffice to say that at least three different intellectual styles or presentation traditions prevail: the French "Gaulish" tradition, the English "Saxon" tradition (represented by Oxbridge and many US-based universities), and the German "Teutonic" tradition (e.g., Münster, Marburg, Heidelberg).

The French style is often characterised by rhetorical eloquence and intellectual brilliance in synthesising a legion of different walks of life in one piece of writing. The English style is less "decorative", more to the point, business-like, austere. This was found to be a problem when the original French documents were to be translated into English. The situation was discussed in Bologna, for instance. Murphy (1997) reports: "[The draft final report] was deemed to be very French in its approach and other intellectual traditions were not included or even envisaged. Could it then be possible to 'de-Frenchise' the text in some way? ... At the very least, the 'French' character of the text should be explicitly acknowledged. In other words, the question asked is: what does it mean to adopt such an approach in the context of a European group?"

Sometimes the translation from French into English lost its meaning or at least obscured the key message so that it was difficult to understand what the precise meaning of the original text had been if only the English translation was consulted. Sometimes the right word simply could not be found. A few key concepts proved false friends. For instance, the French word *capitalisation* was long misunderstood by English-speaking members to indicate a similar phenomenon as *capitalising on something* in English. To conclude, one could take a positive note, though. All these misunderstandings—slight or gross—clearly and unavoidably are part of a European project, a fact that has to be accepted. More attention should be paid to these kinds of problems, though, in a similar project.

An important aspect to ponder upon is **the nature of knowledge**—or information—that was gathered and accessed through the different operations of the Observatory and how it was being utilised locally or at the European level. This issue was occasionally referred to when the scientific aspects of the project and the dissemination of its outcomes were being discussed. As early as November 1996, this was pointed out by presenting a threefold classification of institutional stakes and translation (or correspondence) systems: (i) the approach of academic knowledge acquisition, emphasising factor identification and in-depth conceptual development; (ii) an expertise approach, facilitating the decision-making process, while increasing immediate operationality and adjustable factor identification, and (iii) the approach of innovation circulation, taking into account ethical and political choices (Summary of reports on national surveys 1996, 10). On several occasions, the Finnish members got the impression that mainly due to differences in the participants' professional background, the focus was not unanimously placed on collecting scientific data by observing the rules of a scientific community. On the other hand, many national correspondents, responsible for the actual gathering of data, often felt insecure as the original request was changed or modified, sometimes *after* the work had already been carried out. The position of the project co-ordinators was not enviable for several reasons, one being the large number of countries participating in the project.

Being incurable educational optimists, we interpreted some of the phenomena in a positive spirit. For instance, the interaction between the pilot group, the scientific committee and the national correspondents (the management group) was often jeopardised by **incomplete or delayed instructions** between the groups or by insufficient advance planning. On the other hand, even if a more structured approach was clearly what most participants would have appreciated, the situation was extremely beneficial from the point of view of constructivist planning. At the beginning of several joint meetings over the years, there was a period of constructivist negotiation of meaning before a shared or distributed opinion could be formed. Once again, this kind of situation can be approached from different angles. In a very strict "rigoristic" fashion, the question is of structured advance planning vs. shared sessions of planning. In a more open atmosphere, the question could be phrased as being a shared bottom-up strategy rather than a strict top-down strategy. Obviously, not all action could be approached like this. The difficulties apparently felt by the co-ordinators of the project can be imagined; the whole Observatory was a project in an uncharted territory, not having clear rules to play with at all times.

One of the initial ambitious challenges of the Observatory was to find a functional yet exhaustive enough definition for **the central concept of innovation**. In this, the Observatory received invaluable background assistance from the working group of the NOVA thesaurus, on whose conceptual work the Observatory built its own interpretation of innovation. The definition formulated during the first year of the Observatory (cf. p. 18) proved sustainable and helpful in the subsequent analyses in different countries. Despite the number of explanatory or interpretive descriptions of the concept, little attention was paid to the categorisation of the concept of innovation into different levels or types. One such categorisation, suggested by the English national correspondents, was presented earlier (cf. p. 20). The absence of multi-level categorisation was compensated, however, by an extensive analysis of the near synonyms for innovation in different countries. One weakness in the analyses of the Observatory might be seen in the fact that the definitions and interpretations of the Observatory were not systematically contrasted with a more general research literature. In the final analysis, however, we are of the opinion that the notion of innovation is fairly thoroughly analysed from different angles, administrative, technical and educational. If the French NOVA thesaurus, not readily accessible to all members of the Observatory, is taken into account, one could even argue that the central concept was well covered and will help future researchers in this field.

The use—or rather, the non-use—of **modern information and communication technologies** (MICT) in the Observatory needs some more analysis and comment. Since the Observatory was initiated and started as early as 1994, it was understandable, at least at the beginning of the project, that little if any conscious attention was paid to the increasingly growing uses of MICT, distance education (DE) and open and distance learning (ODL) or, more generally speaking, to media education. Consequently, this important and rapidly emerging area was almost completely left out from the activities of the Observatory. This was even more surprising when the French advances in technology were taken into account. France was one of the leaders in educational technology throughout the late 1970s and the early 1980s. It seems, however, that the immense success of the French Minitel slowed down the progress on and the interest in the Internet in France, forcing her to lag behind the rest of the Western countries.

Furthermore, apparently most members of the Observatory were rather unfamiliar with the latest developments in educational technology. In some countries, especially Finland and Denmark, the use of different technologies, such as email, computer conferencing, mail lists, the World Wide Web, etc. were in everyday use. This created an unbalanced situation, which led to poor utilisation of the Internet in the Observatory. True, the Observatory could access the server of the INRP in Paris and there obviously was a plan to fully exploit its services so that all Observatory reports would have been on the Web and accessible to all members of the project. The Observatory also had at least one French member (Mr **Naoum Salamé**) who was genuinely interested in developing the services on the WWW, but he soon gave up as apparently very little support was given to him in this activity. At one of the general meetings, Mr Salamé and Seppo Tella presented some of the benefits inherent in the uses of MICT, but this initiative fell through because of lack of interest by the majority of the members. At another meeting in St-Jean d'Angély in 1997, the European Commission representative raised the issue of educational technology but was given to understand that it was not among the first priorities of the Observatory. Very often—and increasingly in 1998—unfortunately, the Paris server was either temporarily out of order or it did not allow entrance from abroad.

The uses of MICT include other **telematic services** as well. Surprisingly, there was never any real electronic network established between the members of the Observatory. The members' email addresses were collected a couple of times, but the idea of using them was probably given up by the pilot committee once they realised that only a few members of the Observatory used email regularly. In a few instances, the use of email messages was encouraged, such as in the Report on the 2nd Session of the Management Committee of the European Observatory on Innovations in Education and Training (1996), but these occasions were exceptions. In our opinion, the Observatory would have profited from a regular exchange of ideas via email. A deliberate use of email attachments would also have helped disseminate the national reports, different questionnaires and meeting protocols to all members of the Observatory.

In light of this background, some of the choices made regarding **the Finnish contributions** seem even more striking; in addition to analysing the central concept of innovation, the Finnish case studies also focused on analysing the Virtual School concept and, generally speaking, the introduction of media education and modern technology into educational contexts. Some data was also gathered directly through email by both Docent Tirri and Professor Tella.

The Finnish initiative was noticed in some of the comments in the Final Report (Cros 1998c). Vaniscotte (1998, 53), for instance, underlines the role of technology as an equaliser between the two genders: « Le Danemark et surtout la Finlande font porter l'accent sur les technologies de l'information qui apparaissent comme un moyen de valoriser l'égalité des chances ». She also acknowledges the importance of distance education in Finland and in Greece, and gives credit to the Aquarium Project presented by Dr Tirri to the Observatory: « La Finlande et la Grèce, pays très excentrés du centre de l'Europe communautaire, développent l'enseignement à distance et font porter leurs efforts sur les technologies de l'information. En Finlande un ambitieux programme international de communication par E-mail 'Aquarium' rassemble un nombre important d'écoles » (Vaniscotte 1998, 59–60).

The modernising effect of the Finnish Virtual School experiment was earlier recognised by Platone & Goussot (1997) in their summary:

> "The innovation presented by Finland ... deals with the introduction at school of modern technological means of communication (computing, telecommunications). This modernisation is perceived as an improving tool for school at the service of democratisation and teaching. Indeed,

> virtual school appears as a very useful choice for pupils living abroad or in geographically remote areas, and, in general, as a considerable source of pedagogical material, which favours in particular 'the differentiation of education' according to the needs of each pupil …
>
> Broadly speaking, virtual culture being apprehended as one of the major dimensions of the future of our societies, it is a given fact that it is the school's responsibility to encourage the access for all to this culture and to the wide space of communication and co-operation it opens up: poor people like wealthy people, of course, but also girls and boys. This is why the study made about this innovation is careful about spotting the inequalities of behaviour of the different categories of pupils in front of the technological tools. We may expect the concrete modalities capable of preventing the inequalities in front of modern technologies to appear soon in this very recent innovation (it started in autumn 1996)." (Platone & Goussot 1997, 21)

In the Final Report as well, Platone (1998, 79) anticipates some of the benefits that might arise from an enhanced use of educational technology when she refers to the Finnish Virtual School experiment, which opens up new horizons for Finnish students:

> « L'étude finlandaise enrichit ces attentes du projet d'ouvrir l'école aux moyens informatiques et télématiques … L'historien pourrait noter avec intérêt qu'il ne s'agit pas ici de substituer une ‹ école virtuelle sans mur › à l'école traditionnelle. Il s'agit d'introduire les moyens de la virtualité dans l'école traditionnelle en assignant à celle-ci le devoir de faire accéder tous les élèves aux nouvelles possibilités d'information et de communication qu'ils ouvrent. » (Platone 1998, 79)

We agree with Platone (1998, 79) on the Virtual School complementing a more conventional school but believe that it is not the task of a historian to analyse the situation; rather, this should be the task of each and every teacher and teacher educator in a contemporary society.

5.2 The Finnish Experiments Revisited

Finland presented two case studies to the European Observatory. The two studies were based on the interview data reported in Chapter 4.2. The first case study (Chapter 4.3.1: Analysis of some nationwide strategic guidelines on Finland's path to becoming an information-rich knowledge-intensive society) reflected an innovation at the national level. In the scientific report of 1996–1997, this case study was classified as a top-down innovation. This classification indicated that the initiative for the innovation came from the authorities (Paquay, Kelchtermans, Sirota & Vaysse 1997; cf. also Paquay, Kelchtermans, Sirota & Vaysse 1999, 140). The Finnish top-down case study adopted a theoretical approach by analysing the leading national documents dealing with the national plan. Local and practical implementations of the national plan were discussed in the area of teacher education. Finland contributed to the theme of "training of teaching personnel" with this case study by discussing the concrete applications to improve teachers' skills in MICT. Paquay, Kelchtermans, Sirota & Vaysse (1997) analysed the Finnish case study in the context of professional competence. They noted the priority in the Finnish case to educate a high number of secondary school teachers who would be able to use all the multimedia means with efficiency in their classes.

The other Finnish case study (Chapter 4.3.2: On creating a virtual school-based learning environment for the Finnish schools) reflected an innovation at the school level (meso-level). In the scientific report of 1996–1997, this case study was classified as an innovation that functioned in the school system. The other group of studies included innovations outside the school, mostly in the surrounding environments. The Finnish virtual school experiment was seen as a very recent and modern innovation compared to the other European innovations. In fact, the Finnish case was identified as the "youngest" innovation (Platone & Goussot 1997, 32).

Finland contributed to the theme of "equality of opportunities" with the virtual school case study. Virtual culture was seen as a way to open a wide space of communication and co-operation for both poor and wealthy people. However, a special emphasis in the study was given to the gender equity. The "top down/bottom up" classification did not work in the case studies dealing with equality of opportunities. Platone & Goussot (1997) proposed a second categorisation according to four types of innovations. These categories were the following: downward processes, processes at the bottom, framed processes and spiral processes (Platone & Goussot 1997, 34). According to this classification, the Finnish case was located under the category "framed processes". The innovations in this category shared the common feature of being implemented from the top: all concern national policies which have defined innovating objectives for the educational system and which very often gave them a strong consistence by inscribing them in a legislative or statutory frame (Platone & Goussot 1997, 36).

The quality of the case studies presented in the European Observatory was very heterogeneous. The case studies of each country reflected the culture and the scientific tradition to which they belonged. Some of the studies were academic pieces of work; others reflected a more practical orientation in teacher education. However, together they formed a rich repository of knowledge on European educational innovations. When comparing the Finnish case studies with the other European cases, some features underlying the Finnish work can be identified:

1. They were based on scientifically oriented and disciplined work.
2. All the data were new and collected for the Observatory.
3. They reflected a high-context culture, in which the accuracy of information is seen as being more important than the social communication inherent in the Observatory.
4. The topics discussed in the case studies were unique and based on expert knowledge.
5. They were almost immediately put at the disposal of all members of the Observatory through the Web.
6. They met all the deadlines given by the Observatory.

The Finnish members of the Observatory learned a lot from the other experiments. Some of the topics discussed in the other European cases (for example multicultural issues in teaching and learning, integration in education) are issues that might become increasingly important in Finnish educational contexts in the future. Hopefully, the Finnish expertise in modern technology and MICT reflected in the case studies could serve the other European countries in their efforts to take better advantage of modern information and communication technologies in their educational systems.

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7. APPENDICES

7.1.1 Appendix 1: Classification of the Interview Answers Based on the Questionnaire

7.1.2 Appendix 2: The 11 Subprojects of the Virtual School Project

7.1.3 Appendix 3: The Questionnaire

7.1.4 Appendix 4: Classification of the Answers Based on the Questionnaire

APPENDICES

Appendix 1: Classification of the Interview Answers Based on the Questionnaire

	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 5	Respondent 6	Respondent 7
Concept of Educational Innovation	**3 definitions**: • creation of a new educational culture • a starting power • a change in practice	**1 definition**: • a creative, new solution in educational policy	**2 definitions**: • a creative way to renew education • perception	**1 definition**: • a new opening	**1 definition**: • an idea that makes things move	**1 definition**: • a new idea to overcome some problems in education	**2 definitions**: • an unusual development in teaching • a creative solution
Recent Innovations in Finland	**3 areas**: • constructivism • information society • emphases on teacher education	**3 areas**: • changes in economics • more power to municipalities • ungraded school system	**3 areas**: • ungraded school system • new information technology • curriculum integration	**2 areas**: • municipality-based curricula • ungraded school system	**3 areas**: • emphases on culture • Aquarium • Finland towards an information society	**2 areas**: • Aquarium • ungraded school system	**5 areas**: • changes in teacher education • student supervision • ungraded school system • language teaching • co-operation between institutions
Identification	• contacts of people who develop new things • visits to the schools	• changes in society • Unesco • Scandinavian contacts	• political interests • current research	• international contacts • current research • contacts with other interest groups	• current publications • national network • interest on supporting developmental work	• national network • contacts by e-mail	• wide contacts with other teacher unions • highly qualified staff

Spreading and Supporting	• grants for research and development work • strategies planned	• international contacts: ETUCE, EI, EIE • national contacts: Ministry of Education, National Board of Education	• grants for research and development work regardless of their location	• experimental work • teachers' in-service education • publishing • seminars	• political decision-making • guidance • publicity • publications	• research • use of international experts	• strategies planned • information • political influence
Innovations Identified	• information technology in teacher education	• preschool education • matriculation exam • professional schools • information technology	• media education • a professorship in media education	• Finland towards an information society	• Aquarium • Finland towards an information society	• Aquarium	• student supervision • teacher education • ungraded school system
Emphases in Teacher Education	• support for the growth process of becoming a teacher	• science and maths • raising status of teachers	• teacher personality • a broad knowledge base for teachers	• teacher personality • enhancing the status of teachers	• teacher role • content knowledge • variety	• teacher role • criteria for selecting students in teacher education • science and maths	• teacher status

Appendix 2: The 11 Subprojects of the Virtual School Project

A total of eleven subprojects was presented in at starting seminar. These projects and their leaders were:

Schools
1. Vitikkala Elementary School: Creating materials for studying science
2. Ylimuonio Elementary School: "Lapland"
3. Aurora Elementary school in co-operation with Viherlaakso Library: "Using the Library"
4. Meritori/Kirkkojärvi Elementary School: Creating materials for studying science (emphases on gifted children)
5. Herajoki Elementary: "Theatre education"

Museums
6. Akseli Gallen-Kallela Museum & Freenet: "The Golden Period of Finnish Art"
7. Espoo Museum: "Prehistory of Espoo"

Institutes
8. KVS-Institute: Children home-schooled abroad: "Creating materials for studying Finnish abroad"

Research
9. Kirsi Tirri: European Observatory: "On Creating a Virtual School-Based Learning Environment for the Finnish Schools—A Case Study"

Individuals
10. Mikko Kinnunen: Students
11. Jarmo Lahti: "Co-operation between virtual school and home"

In addition to these subprojects, two schools told us that their subprojects would be defined later.

Appendix 3: The Questionnaire

The questionnaire sent to the Virtual School Project mailing list in January 1997 consisted of the following ten questions:

1. Describe the subproject of your school or institute that contributes to the Virtual School Project. Introduce your own project using a maximum of 100 words in which you tell us about your goals, special areas of interest and the target group you planned your project for.
2. How are modern information and communication technologies acknowledged in your school curriculum? Please mention the optional voluntary courses or clubs etc. available in your school.
3. How is teaching of information technology divided between teachers of different subjects in your school? What percent of the teachers teach information technology in some form according to your own assessment?
4. Have you discussed issues related to the equality of gender in teaching information technology in your school? How? Please mention areas related to these issues. What percent of the teachers teaching information technology are female?
5. How many students in your school participate in the teaching of information technology? How are students distributed according to sex in the courses arranged in information technology in your school? Please estimate in percentages.
6. What kinds of technical solutions has your school or institute come up with while using information technology? Describe the hardware/software environments in which you work. Please mention possible data communication solutions (how many incoming/outgoing dial lines, existence of a fixed Internet connection, existence of a dedicated server, etc.). What kinds of printing solutions do you have in your school? (shared laser printer, local inkjet printer, every machine has a printer of its own, etc.)? What kinds of solutions have been adopted to transfer files, etc.?
7. What kind of support or training would you like to get to be more able to develop the virtual school in your own school?
8. What kinds of visions do you have regarding virtual school and the use of media and information technology in schools in general?
9. How would you divide responsibilities between school and homes regarding the support of students in using media and information technology? Please mention areas that teachers and the school are responsible for.
10. What else would you like to mention concerning your own project or the virtual school in general?

Appendix 4: Classification of the Answers Based on the Questionnaire

	I 1	I 2	S 1	S 2	T 1	S 3
The Description of the Subproject	**Finnish language Grade 7** • studying abroad, instructions to study, exercises, email contact with teacher and other students	**Pre-history of Espoo** • students of all ages knowledge about prehistory, exercises educational policy	**Using a Library** students participating in email course, knowledge-acquiring skills, love of literature	**Lapland Adventure**	**Virtual Flora**	**Lapland** Science and environmental studies • an adventure on the Internet, visits to Lappish fells, Sweden and Norway, feedback via email
The Curriculum of Information Technology	• The subject not included in the curriculum	• The subject not included in the curriculum	• Computers everyday tools. • their use is one of the basic skills, 1-2 optional courses available	• Computers everyday tools, Grades 1-2: getting to know computers, Grades 3-4: teaching of basic skills, Grades 5-6: using computers in projects etc.	• Not in the curriculum, optional courses available, computers in use depending on the individual teacher	• Information technology a normal part of school life, educating parents in the use of computers
Teachers who Teach Information Technology	• no answer	• no answer	One specialised teacher, 14 out of 17 use computers regularly	33 % of the teachers teach IT (Grades 5-6 teachers)	35% of the teachers use computers in teaching, identified himself as the person responsible for computers in his school	• Both teachers teach IT, one teacher specialised in technical supervision
Equality of Chances	• no answer	no answer	a lot of basic skills for everybody, in optional courses boys outnumber girls, almost all teachers teach IT	2 of the 3 teachers are male	• No female teachers seen in the computer room	• 50%

Students in Information Technology	• no answer	• no answer	all study basic skills, boys study more optional courses	all students get some teaching, no optional courses available	35% of the students participate in IT, boys more interested than girls	• all students participate in IT, girls more active than boys (email, drawing)
Technical Solutions	2 PCs, 2 telephone lines and modems, 1 laser printer, no Internet connections for teachers who work at home	City of Espoo server	Macintosh computers with CD-roms, 2 PCs, a scanner, few computers with Internet access, several modems, printers not logged on to the net	Windows net with 7 computers, 2 printers, Internet connection thru server, 1 telephone line in use	permanent connection, about 20 computers, 2 laser printers, classrooms not logged on to the net	• old PCs, a few new computers, 10 computers (1 computer for two students), 3 computers on Windows net, modem connection to the Internet
Support and Training Needed	participates in inservice training, to learn to create materials for WWW pages	• lack of technical skills, outside help needed in uploading the materials to the net	• lack of computers, connections working, inservice training for everybody involved in virtual school	• attitude training needed to get rid of the traditional classroom teaching, technical training	Concrete advice for teaching, more discussion	Discussion and change of ideas, meetings with virtual people, inservice education, research on students' progress in using IT
Future Visions	• better communication between students abroad and teachers, children abroad, small schools, wider selection of courses for everybody	• an interesting addition to the usual school work	• virtual school going to be one of the alternatives to attend school, computers tools in learning	• IT will increase in education, computers used more and more as tools for learning	• gives ways to differentiate education and to arrange special education, • pedagogical & psychological needs remain the same, despite technical developments	• with new generation teachers the use of IT will increase, videoconferencing welcomed to isolated areas

Responsibilities of Schools and Homes	• main responsibilities for schools which should have education and equipment, -in our case responsibilities are at home	• schools should give basic skills (equality of chances), parents responsible for equipment, supervision & support children's time on computers	• school responsible for teaching to promote equality of chances	• schools should be able to give basic IT skills to every student, additional teaching for the gifted	• school to give possibilities to learn and practice IT outside school hours, parents should take care of normal upbringing of the child but with school's support	• co-operation with parents important, school can educate parents in IT as well
Other Comments	• no comment	• support in differentiation of education (neighbourhood history)	• denial of grant money was unfair	• what is the role of the virtual school? Hopefully, available to everybody as it will bring joy and stimulation to isolated areas	• how long will teachers do extra work without being paid? This might be one of the reasons why you don't get all the answers to this questionnaire!	• virtual school is a way for teachers to keep up with new trends and renew themselves in their profession • gives new ideas and contacts all over the world.

200 Academic Publications from the Department of Teacher Education 1982–1999

TUTKIMUKSIA 1
Helsingin yliopiston opettajankoulutuslaitos

Juhani Hytönen

OPETTAJANKOUL
TEORIA-AINEKSI
Käytännön sovellutukse
luokanopettajan koul

Helsinki 1982

Research Report 200

Seppo Tella & Kirsi Tirri

Educational Innovations in Finnish and European Contexts

An Analysis of the Aims and Outcomes of "The European Observatory" of the European Commission (1994-1998)

Department of Teacher Education
University of Helsinki

1 Juhani Hytönen 1982. Opettajankoulutuksen teoria-aineksia. Käytännön sovellutuksena Helsingin yliopiston luokanopettajan koulutusohjelma.

2 Paul Hellgren 1982. Communicative proficiency in a foreign language, and its evaluation. An analysis of the concept and an experiment with oral proficiency.

3 Anna-Liisa Leino 1982. Opetusteknologian funktioita: Kielistudio.

4 Research on teaching and the theory and practice in teacher training. Unterrichtsforschung und die Theorie und Praxis in der Lehrerausbildung.
Papers presented at an international symposium in Helsinki, October 2nd and 3rd, 1980. DPA Helsinki Investigations IV edited by Erkki Komulainen.

5 Sirppa Kauppinen 1982. Kansakoulun ja oppikoulun äidinkielen opetussuunnitelman kehitys autonomian ajalta 1950-luvulle.

6 Arja Puurula 1982. Kasvattajan arvokäsitykset: arvot ja päämäärät maailman katsomuksen osana – erään teoreettisen mallin ja mittarin kehittelyä.

7 Matti Erätuuli – Veijo Meisalo 1982. Fysiikan ja kemian oppilastöiden evaluaatio. Lähtökohtana peruskoulun yläasteen fysiikan ja kemian oppilastöiden evaluaatiomenetelmien kehittämiseksi.

8 Oiva Louhisola 1983. Kasvatustieteen opinnot luokanopettajankoulutuksessa.

9 Kai R Lehtonen 1983. Valtiovalta ja oppikirjat: Senaatti ja kouluhallitus oppi- ja kansakoulun oppikirjojen valvojina Suomessa 1870–1884.

10 Iija Pietikäinen 1983. The adaptability of the theory of knitted fabric to the designing of hand-made products.

11 Singa Sandelin 1983. Studiestil. Att fungera som studerande – förhållningssätt till studieuppgiften och studiegruppen.

12 Juhani Jussila ja Pertti Kansanen (toim.) 1983. Matti Koskenniemi: ... Niin mielelläni vielä.

13 Pertti Kansanen (Ed.) 1983. Current research on Finnish teacher education.

14 Katri Sarmavuori 1983. Äidinkielen tavoitteiden saavuttaminen peruskoulun ala-asteella ja sen päätösvaiheessa. ABC-projektin raportti 8.

15 Katri Sarmavuori 1983. Seitsemäsluokkalaisten persoonallisuus ja äidinkielen tavoitteiden saavuttaminen. ABC-projektin raportti 9.

16 Kari Uusikylä 1983. Opettajankoulutus prosessina. Seurantatutkimus Helsingin yliopiston opettajankoulutuslaitoksen luokanopettajan koulutuslinjalla;
Osa 1: Tutkimuksen lähtökohdat ja viitekehys;
Osa 2: Opettajankoulutuslaitoksen opinnot opiskelijoiden arvioimina.

17 Matti Erätuuli 1984. Wie können sich die finnischen Schüler der Schuljahre 7 bis 9 die alltäglichen Phänomene der Wärmelehre erklären.

18 Arja Puurula 1984. Koulun työrauha kasvatussosiologisena ongelmana.

19 Hannele Niemi 1984. Aineenopettajaharjoittelijoiden persoonallisuus ja vuorovaikutusasenteet.

20 Hannele Niemi 1984. Aineenopettajaharjoittelijoiden opetusongelmat, konfliktin sisäistämisprosessi sekä arviot koulutuksestaan ja sen kehittämisestä.

21 Anna-Liisa Sysiharju 1984. Intergenerational contacts and urban family life among women and men of different ages in a rapidly changing society.

22 Anna-Liisa Sysiharju 1984. Women as educators: Employees of schools in Finland.

23 Terttu Gröhn 1984. Oppimisprosessi ja opiskelustrategiat korkeakoulutuksen kehittämisen lähtökohtana. Sovellutusalueena kotitalouden opetus. Tutkimussuunnitelma ja teoreettinen viitekehys.

24 Airi Hautamäki 1984. Lukioon lähtö ja sosiaaliluokka. 11–17-vuotiaiden nuorten itsesäätelyn ja ympäristöhallinnan kehitys kodin toimintaympäristön valossa.

25 Matti Koskenniemi 1984. Educational aims and the purposiveness of instruction. Sceptical talks.

26 Hannele Rikkinen 1984. Kuvien merkitys aluemaantieteellisen tekstin osana.

27 Seija Nieminen 1984. Teachers' perception of mental health, its relationship to their mental health and to changes thereof.

28 Antti Lappalainen 1985. Peruskoulun opetussuunnitelman syntyprosessi ja peruskouluopetuksen johtamisjärjestelmän muotoutuminen.

29 Inkeri Sava 1985. Tekstiilityön opetus tutkimuskohteena. Tutkimusalueet ja tutkimusluettelo.

30 Pertti Kansanen (Ed.) 1985. Discussions on some educational issues.

31 Inkeri Sava 1985. Työnohjaus opettajien tietoisuuden kasvun välineenä. Tapaustutkimus kahdesta työnohjausryhmästä.

32 Erkki Pehkonen 1985. Peruskoulun geometrian opettamisen periaatteista ja niiden seurauksista opetukseen.

33 Airi Hautamäki 1985. Gymnasium eller inte? Pojkars och flickors personlighetsutveckling, verksamhetsmiljö och sociala bakgrund.

34 Matti Koskenniemi 1985. Yleissivistävän koulun hallinnon kasvu 1945-84 ja opetustapahtuma.

35 Matti Erätuuli – Veijo Meisalo 1985. Fysiikan ja kemian oppilastöiden evaluaatio II. Luonnontutkimustehtävät fysiikan ja kemian kokeissa.

36 Paul Hellgren 1985. Teaching—a social concept.

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